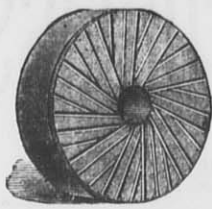


The United States MILLER

Volume 10.—No. 1.

MILWAUKEE, NOVEMBER, 1880.

Terms: \$1.00 a Year in Advance.
Single Copies, 10 Cents.



Mill Furnishing,
Foundrymen & Machinists.
Established 1851.
MILL STONES.
Flouring Mill Contractors.
Send for Pamphlet.
Nurdyke & Marmion Co
Indianapolis, Ind.



Important Notice
For millers about to purchase Roller Mills. We take this method of informing our friends that we have made arrangements for the exclusive manufacture of the

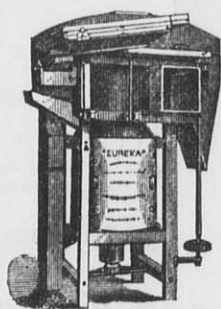
Stevens Roller Mills,

UNDER THE PATENTS ISSUED TO JNO. STEVENS.

The work done by the Mills is far superior to that of any other machine known in this country or Europe.
License to use the machine and process will be issued by the patentee for each mill furnished by us.

Old rolls, or those with inferior dress, recut with the Stevens dress at reasonable prices.

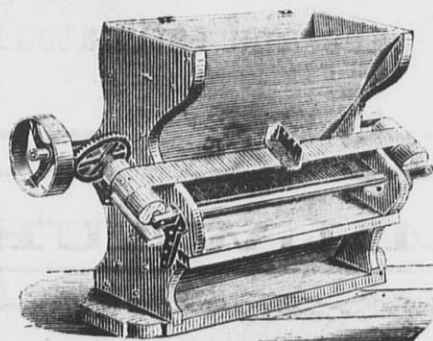
JOHN T. NOYE & SONS, Buffalo, N.



HOWES, BABCOCK & EWELL,

LATE HOWES, BABCOCK & CO.,

Silver Creek. - New York.



Sole proprietors and manufacturers of EUREKA Wheat Cleaning Machinery, consisting of "Smut Machines," "Brush Machines," Separators for mills and warehouses, and Flour Packers.

Also the Magnetic Separator for removing substances from grain automatically, and dealers in the genuine Dufour & Co. and Dutch Anker brands Bolting Cloth, and mill furnishings generally.

Send for circulars and price lists. Address as above.

PARIS INTERNATIONAL EXHIBITION OF 1878.

Six Awards obtained, including Two Gold Medals and the Decoration of the Legion of Honor.

J. HIGNETTE, Constructing Engineer,

162 and 164, Boulevard Voltaire, Paris, France.

Sifter and Stone Clearer,

FOR CLEANING GRAIN.

Over 2,000 of these machines have been made up to the present.

Sorel's Cement for Repairing Millstones.

Sample Boxes sent on receipt of Post-office order for 4s. (\$1).

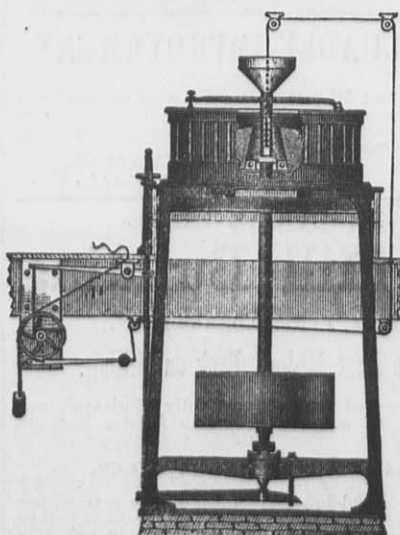
COMPLETE SYSTEM OF GRAIN CLEANING FOR MILLS.

FLOUR AND RICE MILLS, BAKERIES, and STARCH WORKS

Fitted up complete with every requisite.

SPECIAL MACHINES FOR DECORTICATING AND PEARLING CEREALS.

THE FRUEN Automatic Stone Lift



As represented here is for preventing stones that have run dry from any cause, from running together and glazing or causing fire, or bursting, one of which is sure to occur when the stones have run dry. It works automatically, is not complicated, and can be attached without stopping the mill. Requires no attention after being set, and is always reliable. It is cheap, and a positive preventive against fire from the above cause.

For further information address the

Victor Heater Co.,

401 Washington Avenue South,

Minneapolis, Minn., U. S. A.

PENNSYLVANIA STEEL CAR PUSHER.



Made entirely of steel. It will not slip or grease. With it one man can easily move a loaded car. Warranted superior to any other. Manufactured by
E. P. DWIGHT,
407 Library St., Philadelphia.

SUBSCRIBE FOR THE

United States Miller!

THE LEADING MILLING JOURNAL OF AMERICA.

Subscription Price One Dollar per year, post paid. Address
UNITED STATES MILLER,
62 Grand Opera House, Milwaukee, Wis.



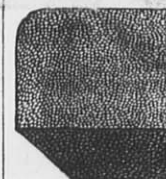
H. J. DEAL'S BOARD OF TRADE INSPECTOR.
Flour, Grain and Bolting Cloth
Flour Triers and Magnifying Glasses a Specialty.

H. J. DEAL,

Box 61. Bucyrus, Ohio, U. S. A.

THE ELECTRIC ADJUSTABLE & BARREL TALLIES
ADJUSTABLE TO 1/8, 1/4, 1/2, & BBL'S.
SATISFACTION GUARANTEED
W. N. DURANT, 425 CANAL ST.
MILWAUKEE WIS.

MILLER'S PATENT COMPOSITION BURR RUBBER.



The best, cheapest and most durable in the market. Will outwear any half dozen others made. Try it and be convinced. Face Rubber, 12x6x3 inches; weight, 12 lbs.; price, \$3. Furrow Rubber, 12x6x1 1/4, 1 1/2, or 2 inches as required.

\$2.50, or both for \$5, by express. Marble Proof Staff (Logan's patent), best in use. Not affected by heat or cold like iron. Warranted true: 4 1/2 feet; weight, 100 lbs.; \$15. Send for circulars. Order of
april MILLER & McCARTY, Mount Union, Pa.

HUNTINGDON, Pa., June 21, 1880.—Miller & McCarthy, Mount Union, Pa.—Dear Sirs: The Miller's Patent Composition Burr Rubbers bought from you last spring are certainly the best rubbers. We hardly know how any well regulated mill can be run successfully without them. Having had practical experience in the milling business for the last 15 years we know whereof we speak. Very respectfully,
Proprietors Henry Flouring Mills,
A. L. Stephens, head miller.

Northwestern Mill Bucket Manufactory

310, 312, 314 FLORIDA STREET,

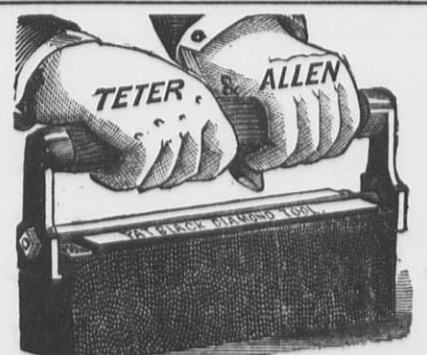
Is furnishing Mills and Elevators in all portions of the country with their superior BUCKETS.



They are UNEQUALLED for their SHAPE, STRENGTH AND CHEAPNESS. Leather, Rubber, Canvas Belting and Bolts at lowest market rates. We have no traveling agents. Sample buckets sent on application. Large orders will receive liberal discounts. Send for sample order.

Address all inquiries and orders to

feb L. J. MUELLER, 197 Reed st., Milwaukee.



Over 4000 now in use. Guaranteed the best Tool in the market for smoothing the face and furrows, removing glass, and restoring the burrs to their sharp, natural grit. It is far superior to Emery or Corundum. Used with or without water. Too large to send by mail. Price, \$5.50. Will send our Tool on trial against any other in the market. Miller's to pay for the best after a trial. Sold by Mill Furnishers throughout the world.
See that it has "Teter & Allen, Pat. Black Diamond Tool" on the plate.

TETER & ALLEN,
404 Commerce St., Philadelphia, Pa.

Bennett's Patent Elevator Bucket.

Made from one piece of Metal.

CHEAPEST AND STRONGEST BUCKET

Manufactured.

Made of either plain or galvanized iron. Send for Circulars and Price List to

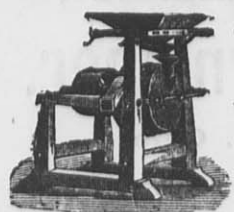
July BROWER & BENNETT, Fox Lake, Wis.



CHRISTIANA MACHINE CO'S SPECIALTIES.
PORTABLE BURR MILLS
MILL & FACTORY GEARING
CIRCULAR SAW MILLS
with improved Ratchet head blocks
STEAM ENGINES.
SHAFTING PULLEYS AND HANGERS.
TURBINE WATERWHEELS
AND MILLING SUPPLIES.
ADDRESS: CHRISTIANA, LANCASTER CO, PA.

H. P. Yale & Co.,
Dealers in

Wood and Iron-Working Machinery,



STEAM ENGINES,
BOILERS,
FRENCH BURR STONE
FEED MILLS.
HALL'S SAFES,
ETC., ETC.

99 West Water St., MILWAUKEE, WIS.

Agents for the celebrated
HOT POLISHED SHAFTING.

Cockle Separator Manufacturing Co.,

Milwaukee, Wis., U. S. A.,

Manufacturers of the well-known

Pat. Cockle Separator.

Built also in combination with

Richardson's Dustless Oat Separator.

Write for illustrated catalogues describing machines. [Mention this paper.]

RELIANCE WORKS,

E. P. ALLIS & CO., Prop's, Milwaukee, Wis.

MILL BUILDERS AND FURNISHERS.

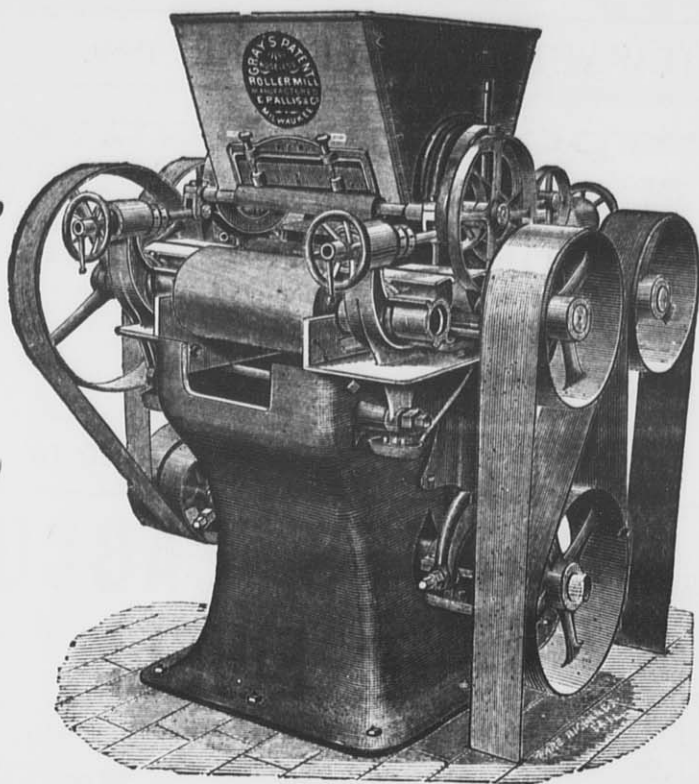
Gray's Patent
NOISELESS
Roller Mills,

— WITH —
CHILLED IRON SMOOTH ROLLS,
CHILLED IRON GROOVED ROLLS,

— AND —
Wegmann's Patent
Porcelain Rolls.

These machines run noiseless, with a smooth, steady motion, and can be run at higher speed, and will perform their work under less pressure than other machines.

They have perfect Horizontal and Vertical Adjustment, and the boxes are self-oiling and will never heat. The Differential speed is positive.



— THE —
REYNOLDS-CORLISS
Engine.

This is the most perfect type of the Corliss Engine made, and is

Stronger in Its Essential Parts,

Than any other, the regulation is most perfect, and in

ECONOMY

It stands at the head, having developed in actual test the

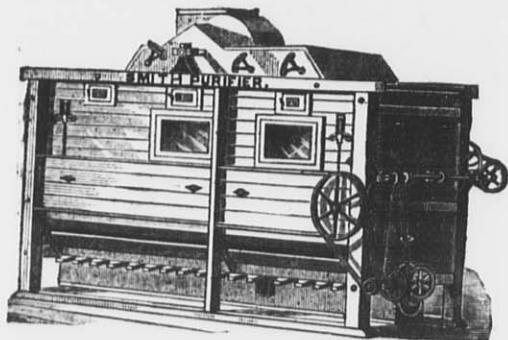
UNPARALLELED HIGH DUTY

Of 2½ lbs. of coal per indicated horse power per hour while running at high pressure, and correspondingly high duty at low pressure.

This Means 100 Bbls. of Flour with 1 Ton of Coal.

Full information and particulars given for building new and changing over old mills to the **GRADUAL REDUCTION SYSTEM BY ROLLS.** Plans and estimates for mills or steam power furnished.

E. P. ALLIS & CO.,
MILWAUKEE, WIS.



SIMPLE, DURABLE, ECONOMICAL. Cheaper than any other of equal capacity. Licensed under all patents owned by Consolidated Middlings Purifier Co. Eight sizes single and three sizes double machines.

THE GEO. T. SMITH MIDLINGS PURIFIER

Was awarded **THE HIGHEST PRIZE** ever offered for the competition of milling machinery—**THE LOCKWOOD MEDAL**—at the great Exposition. Competition and comparison with every other known Purifier only established it more firmly in the esteem and approval of millers and mill-owners.

It was **UNANIMOUSLY** awarded the **FIRST PREMIUM** in its class by a jury of five of the ablest, most successful and experienced mill-owners in the United States, men who represented the milling of every variety of wheat, and the use of all the latest and most approved methods of new process and gradual reduction milling.

Our sales during the Exposition aggregated **OVER ONE HUNDRED MACHINES**, for every part of the country and for work on all kinds of stock.

We invite particular attention to our **SPECIAL** machines, combining in one all the features of both air and sieve Purifiers, perfectly adapted to handle and purify the breaks of roller mills.

Write for descriptive circular and price list to the

GEO. T. SMITH MIDLINGS PURIFIER CO., Jackson, Mich.

HENRY SMITH, JR.

GEO. G. SMITH.

F. A. SMITH

SMITH BROTHERS,

Practical Millwrights.

Plans, Specifications and Estimates made for all kinds of

MILLWORK, MACHINERY, Etc., Etc.

Flour, Sawmill, Tanners' and Brewers' Machinery, and General Mill Furnishers.

No. 454 Canal Street,

MILWAUKEE, WIS.

The Lockwood Medal, "Awarded to the Geo. T. Smith Middlings Purifier, as the machine making the greatest progress and utility in its application to the grain and milling interests, invented within the last ten years."
Miller International Exhibition, Cincinnati, Ohio, 1893.



German and Austrian FLOUR MILL DIRECTORY.

Compiled from official sources and giving in every instance the number of runs of stone and kind of power used, just published at Leipzig, Germany. This work is of great value to all who desire to build up trade with Germany or Austria. Price, \$9 per copy. Sent by mail on receipt of price. Address—

UNITED STATES MILLER,
MILWAUKEE, WIS.

POOLE & HUNT, BALTIMORE

MANUFACTURERS OF

THE POOLE & HUNT LEFFEL TURBINE

WATER WHEELS,

**MACHINE MOULDED
MILL CEARING,**

**SHAFTING, PULLEYS AND HANGERS,
STEAM ENGINES AND BOILERS,
MIXERS FOR FERTILIZERS AND CHEMICALS.**

C. F. MILLER,
Mill Furnisher,

Mansfield, Ohio.

We will Furnish at Manufacturers' Prices

The Harris-Corliss Engine,
Stationary Steam Boilers,
Stillwell Heaters and Fitters,
Shafting, Gearing and Pulleys,
Separators, Smelters, Brush Machines,
Middlings Purifiers, best in use,
Excelsior Bran Dresser,
Silver Creek Flour Packers,
Lawton & Arndt Bran Dresser,
Downton Corrugated Rolls for cleaning Bran,
Downton Smooth Iron Rolls for Middlings,
Portable Mills, Munson's Iron Clad, all sizes,
Portable Mills, Wood Frame, all sizes,
Griscom & Co., Diamond Mill Stone Dresser,
French Burr Mill Stones of the best quality,
Du Four, Dutch Anchor and Excelsior Bolting Cloths at
Importers Prices. **WARRANTED GENUINE.**
Bolting Chests, with any desired number and length of
Reels, built of best materials and on most
approved plans.
Reel Heads, Reel Arms, Conveyor Flights, Mill Curbs,
all sizes. Mill Picks, Pick Handles, Flour
Scoops, Flour Triers, Cloth Glasses, Ele-
vator Buckets, all sizes. Elevator
Bolts, Mill Stone Rubbers,
Fairbanks' Scales, of any capacity or style, Belting,
Leather, Rubber and Cotton Duck, Detroit,
Fire and Burglar Proof Safes, etc.

**ALL GOODS WARRANTED TO BE AS REP-
RESENTED.**

A VALUABLE IMPROVEMENT.

My Chemical Mill-stone Dress can be obtained in a sufficient quantity for three dressings for \$5. It saves time, improves quality, and increases yield of flour. Satisfaction guaranteed. Address
J. E. WINKENWARDER,
Wyncona, Columbia Co., Wis.

PRACTICAL HINTS

On Mill Building

BY R. JAMES ABERNATHEY.

The Most Modern Book on Milling.

Three hundred octavo pages, fully illustrated, and containing full accounts of Modern Milling Methods, together with

MANY VALUABLE TABLES,

And much useful information for mill owners, millers and millwrights. A book everyone interested in milling should have. **Price, \$4.** Sent postpaid on receipt of price. Address

UNITED STATES MILLER,
Milwaukee, Wis.

The United States MILLER

Volume 10.—No. 1.

MILWAUKEE, NOVEMBER, 1880.

Terms: \$1.00 a Year in Advance.
Single Copies, 10 Cents.

Ancient Mills.

FROM THE GERMAN OF JOHN BECKMANN.

When Vitiges, King of the Goths, besieged Belisarius in Rome, in the year 536, and caused the fourteen large expensive aqueducts to be stopped, the city was subjected to great distress; not through the want of water in general, because it was secured against that inconvenience by the Tiber, but by the loss of the water which the baths required, and above all, of that necessary to drive the mills, which were all situated on these canals. Horses and cattle, which might have been employed in grinding, were not to be found; but Belisarius fell upon the ingenious contrivance of placing boats upon the Tiber, on which he erected mills that were driven by the current. This experiment was attended with complete success; and as many mills of this kind as were necessary were constructed. To destroy these the besiegers threw into the stream logs of wood and dead bodies, which floated down the river into the city; but the besieged, by making use of booms, to stop them, were enabled to drag them out before they could do any mischief. This seems to be the invention of floating mills, at least I know of no other. It is certain that by these means the use of water-mills became very much extended; for floating-mills can be constructed almost upon any stream, without forming an artificial fall; they can be stationed at the most convenient places, and they rise and fall of themselves with the water. They are, however, attended with these inconveniences, that they require to be strongly secured; that they often block up the stream too much, and move slowly; and that they frequently stop when the water is too high, or when it is frozen.

After this improvement the use of water-mills was never laid aside or forgotten; they were soon made known all over Europe; and were it worth the trouble one might quote passages in which they were mentioned in every century. The Roman, Salic, and other laws provided for the security of these mills which they call *molina* or *farinaria*; and define a punishment for those who destroy the sluices, or steal the mill-irons (*ferramentum*). But there were water-mills in Germany and France a hundred years before the Salic laws were formed. Ausonius, who lived about the year 379, mentions some which were then still remaining on a small stream that falls into the Moselle, and which were noticed also by Fortunatus, in the fifth century. Gregory of Tours, who wrote toward the end of the sixth century, speaks of a water-mill which was situated near the town Dijon; and of another which a certain abbot caused to be built for the benefit of his convent. Brito, who in the beginning of the thirteenth century wrote in verse an account of the actions of Philip Augustus, King of France, relates how by the piercing of a dam the mills near Gournay (*castrum Gornacum* or *Cornacum*) were destroyed to the great detriment of the besieged. In the first crusade, at the end of the eleventh century, the Germans burned in Bulgaria seven mills which were situated below a bridge on a small rivulet, and which seem to have been floating-mills. In deeds of the twelfth and thirteenth century, water-mills are often called *aquimolia*, *aqaimoli*, *aquismoli*, *aquimola*. Petrus Damiani, one of the fathers of the eleventh century, says, "*Sicut aquimolum nequaquam potest sine gurgitis inundantia frumenta permolere, ita, etc.*"

At Venice and other places, there were mills which righted themselves by the ebbing and flowing of the tide, and which every six hours changed the position of the wheels. Zanetti has shown, from some old charters, that such mills existed about the year 1044; and with still more certainty in 1078, 1079 and 1107. In one charter are the words: *Super tota ipso aquimola molendina posito in palude iuxta campo alto*; where the expression, *aquimolum molen-*

dina deserves to be particularly remarked, as it perhaps indicates that the mill in question was a proper grinding mill. Should this conjecture be well founded, it would prove that so early as the eleventh century water-mills were used not only for grinding corn, but for many other purposes.

It appears that hand and cattle-mills were everywhere still retained at private houses a long time after the erection of water-mills. We read in the life of St. Benedict, that he had a mill with an ass, to grind corn for himself and his colleagues. Among the legendary tales of St. Bertin, there is one of a woman who, because she ground corn on a fast day, lost the use of her arm; and of another whose hand stuck to the handle, because she undertook the same work at an unseasonable time. More wonders of this kind are to be found at later periods in the Popish mythology. Such small mills remained long in the convents; and it was considered as a great merit in many ecclesiastics, that they ground their own corn in order to make bread. The real cause of this was, that as the convents were entirely independent of every person, without their walls, they wished to supply all their wants themselves as far as possible; and as these lazy ecclesiastics had, besides, too little labor and exercise, they employed grinding as an amusement, and to enable them to digest better their ill-deserved food. Sulpicius Severus gives an account of the mode of living of an Eastern monk in the beginning of the fifth century, and says expressly that he ground his own corn. Gregory of Tours mentions an abbot who eased his monks of their labor at the hand-mill, by erecting a water mill. It deserves here to be remarked, that in the sixth century malefactors in France were condemned to the mill, as is proved by the history of Septimina the nurse of Childebert.

The entrusting of that violent element water to support and drive mills constructed with great art, displayed no little share of boldness; but it was still more adventurous to employ the no less violent but much more untractable, and always changeable wind for the same purpose. Though the strength and direction of the wind cannot be any way altered, it has, however, been found possible to devise means by which a building can be moved in such a manner that it shall be exposed to neither more nor less wind than is necessary, let it come from what quarter it may.

It is very improbable, or much rather false, that the Romans had wind-mills, though Pomponius Sabinus affirms so, but without any proof. Vitruvius, where he speaks of all moving forces, mentions also the wind; but he does not say a word of wind-mills; nor are they noticed either by Seneca or Chrysostom, who have both spoken of the advantages of the wind. I consider as false, also, the account given by an old Bohemian annalist, who says that before the year 718 there were none but wind-mills in Bohemia, and that water-mills were then introduced for the first time. I am of opinion that the author meant to have written *hand and cattle-mills*, instead of *wind-mills*.

It has been often asserted that these mills were first invented in the East, and introduced into Europe by the crusaders; but this also is improbable; for mills of this kind are not at all, or very seldom, found in the East. There are none of them in Persia, Palestine or Arabia, and even water-mills are there uncommon, and constructed on a small scale. Besides, we find wind-mills before the crusades, or at least at the time when they were first undertaken. It is probable that these buildings may have been made known to a great part of Europe, and particularly in France and England, by these who returned from these expeditions; but it does not thence follow that they were invented in the East. The crusaders perhaps saw such mills in the course of their travels through Europe, very

probably in Germany, which is the original country of most large machines. In the like manner, the knowledge of several useful things has been introduced into Germany by soldiers who have returned from different wars; as the English and French, after their return from the last war, made known in their respective countries many of our useful implements of husbandry, such as our straw-chopper, scythe, etc.

Mabillon mentions a diploma of the year 1105, in which a convent in France is allowed to erect water and wind-mills, *molendina ad ventum*. In the year 1143, there was in Northamptonshire an abbey (Pipewell) situated in a wood, which in the course of 180 years was entirely destroyed. One cause of its destruction was said to be, that in the whole neighborhood there was no house, wind or water-mill built, for which timber was not taken from this wood. In the twelfth century, when these mills began to be more common, a dispute arose whether the tithes of them belonged to the clergy; and Pope Celestine III. determined the question in favor of the church. In the year 1332, one Bartolomeo Verde proposed to the Venetians to build a wind-mill. When his plan had been examined, a piece of ground was assigned to him, which he was to retain in case his undertaking should succeed within a time specified. In the year 1393, the city of Spire caused a wind-mill to be erected, and sent to the Netherlands for a person acquainted with the method of grinding by it. A wind-mill was also constructed at Frankfurt in 1442, but I do not know whether there had not been such there before.

To turn the mill to the wind, two methods have been invented. The whole building is constructed in such a manner as to turn on a post below, or the roof alone, together with the axle-tree, and the wings are movable. Mills of the former kind are called German mills, those of the latter Dutch. They are both moved round either by a wheel and pinion within, or by a long lever without. I am inclined to believe that the German mills are older than the Dutch; for the earliest descriptions which I can remember, speak only of the former. Cardan, in whose time wind-mills were very common both in France and Italy, makes, however, no mention of the latter; and the Dutch themselves affirm that the mode of building with a movable roof was first found out by a Fleming in the middle of the sixteenth century. These mills by which in Holland the water is drawn up and thrown off from the land, one of which was built at Alkmaar in 1408, another at Schoonhoven in 1450, and a third at Enkhuisen in 1452, were at first driven by horses, and afterwards by wind. But as these mills were immovable, and could work only when the wind was in one quarter, they were afterwards placed not on the ground, but on a float which could be moved round in such a manner that the mill should catch every wind. This method gave rise, perhaps, to the invention of movable mills.

It is highly probable that in the early ages men were satisfied with only grinding their corn, and that in the course of time they fell upon the invention of separating the meal from the pollard or bran. This was at first done by a sieve moved with the hands; and even yet in France, when what is called *mouture en grosse* is employed, there is a particular place for bolting where the sieve is moved with the hand by means of a handle. It is customary also in many parts of Lower Saxony and Alsace to bolt the flour separately; for which purpose various sieves are necessary. The Romans had two principal kinds, *cribra excussoria* and *polinaria*, the latter of which gave the finest flour, called *pollen*. Sieves of horse-hair were first made by the Gauls, and those of linen by the Spaniards. The method of applying a sieve in the form of an extended bag to the works of the mill, that the meal might fall into it as it came from the stones, and of

causing it to be turned and shaken by the machinery, was first made known in the beginning of the sixteenth century, as we are expressly told in several ancient chronicles.

This invention gave rise to an employment which at present maintains a great many people; I mean that of preparing bolting-cloths, or those kinds of cloths through which meal is sifted in mills. As this cloth is universally used, a considerable quantity of it is consumed. For one bolting-cloth five yards are required; we may allow, therefore, twenty-five to each mill in the course of a year.

When this is considered, it will not appear improbable that the electorate of Saxony, according to a calculation made towards the end of the seventeenth century, when manufactories of this cloth were established, paid for it yearly to foreigners from twelve to fifteen thousand rix-dollars. That kind of bolting-cloth also which is used for a variety of needle work for young ladies' samplers, and for filling up the frames for window screens, etc., is wove after the manner of gauze, of fine-spun woollen yarn. One might imagine that this manufacture could not be attended with any difficulty; yet it requires many ingenious operations which the Germans cannot easily perform, and with which they are, perhaps, not yet perfectly acquainted. However this may be, large quantities of bolting-cloth are imported from England. It indeed costs half as much again per yard as the German cloth, but it lasts much longer. A bolting-cloth of English manufacture will continue good three months, but one of German will last scarcely three weeks. The wool necessary for making this cloth must be long, well-washed, and spun to a fine equal thread, which, before it is scoured, must be scalded in hot water to prevent it from shrinking. The web must be stiffened; and in this the English have an advantage we have yet not been able to attain. Their bolting-cloth is stiffer as well as smoother, and lets the flour much better through it than ours, which is either a little or not at all stiffened.

The places where this cloth is made are also numerous. A manufactory of it was established at Ostra, near Dresden, by Daniel Kraft, about the end of the seventeenth century; and to raise him a capital for carrying it on, every mill was obliged to pay him a dollar. Hartau, near Zittau, is indebted for its manufactory to Daniel Plessky, a linen-weaver of the latter, who learned the art of making bolting-cloth in Hungary, when on a visit to his relatives, and was enabled to carry it on by the assistance of a schoolmaster named Strietzel. Since that period this business has been continued there and become common. The cloth which is sent for sale, not only everywhere around the country, but also in Bohemia, Moravia and Silesia, is worn in pieces. Each piece contains from 64 to 65 Leipsic ells; the narrowest is ten, and the widest fourteen inches in breadth. A piece of the former costs at present from four to four dollars and a half, and one of the latter six dollars. This cloth, it must be allowed, is not very white; but it is not liable to spoil by lying in warehouses. Large quantities of bolting-cloth are made also by a company in the duchy of Wurtemberg. At what time this art was introduced there I cannot say; for everything I know of it I am indebted to a friend, who collected for me the following information on his return through that country: The cloth is not woven in a manufactory, but by 18 or 20 master weavers, under the inspection of a company who pay them, and who supply all the materials. The company alone has the privilege of dealing in this cloth; and the millers must purchase from their agents whatever quantity they have occasion for. The millers, however, choose rather, if they can, to supply themselves privately with foreign and other home-made bolting cloth, as they complain that the weavers engaged by the company do not bestow sufficient care to render their cloth durable; besides, the persons employed to carry about this cloth for sale, often purchased secretly cloth of an inferior quality in other places, and sell it as that of the company. Bolting-cloth is made also at Gera, as well as at Potsdam and Berlin; at the latter of which there is a manufactory of it carried on by the Jews.—*American Miller.*

UNITED STATES MILLER.

PUBLISHED MONTHLY.
OFFICE, 62 GRAND OPERA HOUSE, MILWAUKEE, WIS.
Subscription Price.....\$1 per year in advance
Foreign Subscription.....\$1.50 per year in advance

ANNOUNCEMENT.

MR. P. SCHNEITLER, Berlin, N. Mueller St., 179 B, is duly authorized to receive subscriptions advertisements for the UNITED STATES MILLER, from all parts of Continental Europe, and to receive payment for the same.

WM. DUNHAM, Editor of "The Miller," 69 Mark Lane, and HENRY F. GILLIG & Co., 449 Strand, London, England, are authorized to receive subscriptions for the UNITED STATES MILLER.

MILWAUKEE, NOVEMBER, 1880.

MILLERS' ASSOCIATION DIRECTORY.

NATIONAL ASSOCIATION.

President—George Bain.....St. Louis, Mo.
Secretary and Treas.—S. H. Seamans, Milwaukee, Wis.

STATE ASSOCIATIONS.

MINNESOTA—President, W. P. Brown, Red Wing; Secretary, Francis Hinkle, Minneapolis; Treasurer, J. A. Christian, Minneapolis.

IOWA—President, J. J. Snuffer, Cedar Rapids; Secretary and Treasurer, J. R. Serrin, Sadorra.

NEBRASKA—President, Elam Clark, Omaha; Secretary, C. D. Smith, Lincoln; Treasurer, E. J. Curson, Lincoln.

KANSAS—President, Robert Atkinson, Ottawa; Secretary and Treasurer, O. W. Baldwin, Ottawa.

MISSOURI—President, E. Goddard, St. Louis; Secretary, D. B. Kirk, St. Louis; Treasurer, Geo. J. Plant, St. Louis.

KENTUCKY—President, Wm. N. Potts, Richmond; Secretary, E. D. Hix, Payne's Depot; Treasurer, A. Weisenberger, Payne's Depot.

ILLINOIS—President, D. R. Sparks, Alton; Secretary and Treasurer, C. H. Seybt, Highland.

WISCONSIN—President, E. Sanderson, Milwaukee; Secretary and Treasurer, S. H. Seamans, Milwaukee.

MICHIGAN—President, J. D. Hays, Detroit; Secretary and Treasurer, W. Hibbard, Grand Rapids.

INDIANA—President, Jos. F. Gent, Evansville.

OHIO—President, F. Schumacher, Akron; Secretary and Treasurer, Robert Colton, Bellefontaine.

MARYLAND—President, Robert Tyson, Baltimore; Secretary, J. Olney Norris, Baltimore; Treasurer, W. H. Woodyear, Baltimore.

NEW YORK—President, Geo. Motley, Rochester; Secretary and Treasurer, J. A. Hines, Rochester.

TEXAS—President, John Kerr; Secretary, M. Gray, Dallas; Treasurer, P. S. Sheppard, Houston.

PENNSYLVANIA—President, Chas. D. Miner, Wilkesbarre; Secretary and Treasurer, B. F. Isenbury, Huntingdon.

THE MILWAUKEE PRACTICAL MILLERS' ASSOCIATION—President, Chas. Mueller; Vice-President, Levi Hicks; Recording Secretary, H. W. Sherwood; Financial Secretary, Louis Holtz; Treasurer, E. DeHaas; Usher, Edward Hienke.

THE NATIONAL ASSOCIATION OF BRITISH AND IRISH MILLERS—President, Mr. Alderman Hadley, City Flour Mills, London, England; Secretary, J. H. Chatterton, 69 Mark Lane, London, E. C., England.

We send out monthly a large number of sample copies of THE UNITED STATES MILLER to millers who are not subscribers. We wish them to consider the receipt of a sample copy as a cordial invitation to them to become regular subscribers. We are working our best for the milling interest of this country, and we think it no more than fair that our milling friends should help the cause along by liberal subscriptions. Send us One Dollar in money or stamps, and we will send THE MILLER to you for one year.

MILLERS' DIRECTORY FOR 1880.

All mill-furnishers, flour brokers or other parties desiring to reach the flour mill owners and millwrights of the United States and Canada, should have a copy of the above named work. It contains about 15,600 names with Post-office addresses, and in many cases (notably in Wisconsin and Minnesota) gives the number of runs of stone, sets of rollers, and kind of power used, or the capacity in barrels. A limited number of copies only have been printed. Upwards of 75 of the leading mill-furnishing houses and flour brokers in this country and several in Europe have already secured copies. Send in your orders at once. Price Five Dollars, on receipt of which Directory will be forwarded post-paid by mail, registered. Address

UNITED STATES MILLER,
MILWAUKEE, WIS.

The next International Millers' Association in Austria, will be held at Vienna, in 1882.

OVER \$2,000,000 worth of dried yeast was imported by Great Britain in the year 1879.

The suit of Downton vs. Allis is set for trial in Milwaukee during the last week in November.

READ the advertisement of H. P. Yale & Co. This is a reliable Milwaukee firm, and they can fill your orders promptly and satisfactorily.

OF the 70,400,000 bushels of wheat imported by France for the year ending July 30, 1880, 44,000,000 bushels came from the United States.

A FOREIGN milling paper says that a barrel of flour can be shipped from Milwaukee to Liverpool cheaper than from Budapest to Vienna.

We publish in this issue the reports of the German and Austrian Millers' Associations as they appear in the October number of *The Miller*, London.

If you are not already a subscriber to the UNITED STATES MILLER, send one dollar at once and begin with our Nov. number, which commences the tenth volume.

\$120,558 WORTH of bolting cloth was imported into the United States during the three months ended June 30, 1880. During the same period last year \$67,358 worth were imported.

HON. E. G. RYAN, Chief Justice of the State of Wisconsin, and one of the most noted lawyers in this country, died at Madison, Oct. 20th. He was buried in Forest Home cemetery, Milwaukee, Oct. 22.

ADVICES from Buenos Ayres say: "A terrific snow storm occurred in this province on the 18th of September, and it is estimated that 700,000 cattle, 500,000 sheep, and 250,000 horses perished."

THE Melbourne International Exhibition opened October 1. The opening was attended by all the pomp and power possible to centralize at the time and place. The Exhibition is large, and nearly all countries are represented.

We respectfully request our readers when they write to persons or firms advertising in this paper, to mention that their advertisement was seen in the UNITED STATES MILLER. You will thereby oblige not only this paper, but the advertisers.

We will send a copy of the MILLERS' TEXT BOOK, by J. M'LEAN, of Glasgow, Scotland, and the UNITED STATES MILLER, for one year, to any address in the United States or Canada, for \$1.25. Price of Text Book alone, 60 cents. Send cash or stamps.

A GOOD miller's wages in London varies from \$7.20 to \$8.16 per week. They work from 6 A. M. to 6 P. M. every day, except Saturdays, when the quit at 4 P. M. Night hands get 10 cents per hour, and the London operatives are "kicking" for a raise.

In Milwaukee there resides a dog that can tell Sunday from work days. On Sunday he never barks, plays, or fights with other dogs, and regularly attends the Methodist church. He is much respected in the community. It is needless to say that his master is an honest miller.

WE acknowledge the receipt of the very extensive and valuable catalogue of Franquet Bros., of Oberhausen an der Ruhr, manufacturers of all manner of perforated metal plates for all sorts of purposes. Manufacturers of grain separators and cleaners will do well to send for their catalogue.

WE are pained to learn of the death of Samuel Wylde, Esq., a prominent miller of Run-corn, England. Mr. Wylde visited the United States three years ago and made many friends while here. His son, who was a resident of Milwaukee for some years, we are informed will now remain permanently in England.

MESSRS. FRANK & FLAMANT, the well known newspaper advertising agents, No. 149 Broadway, N. Y., have admitted John J. Kiernan to active partnership, under the firm name of Frank, Kiernan & Co. Publishers and advertising patrons will do well to consult them. They enjoy a good business reputation in this and foreign countries.

TRULY, the millers are not overpaid in Austria. In Vienna, the capitol of that Empire, workmen are paid \$4.08 per week for working sixteen hours per day. On account of depression in business in September, it was proposed to lower this rate of wages, but the workmen objected, and ninety employees in one mill struck.

THE *Corn Trade Journal and Millers' Gazette*, London, has recently shown commendable enterprise by issuing a well-bound extra number of 72 pages, giving a very complete description, with copious illustrations, of the late International Millers' Exhibition at Cincinnati. We are glad to learn that the circulation of this paper is quite extensive in the United States.

THE *Revista Mensual Para los Molinos* (South American Miller), for August, is just at hand and is an interesting paper. It contains arti-

cles descriptive of the Millers' International Exhibition at Cincinnati, Pampa rice, the South American Exhibition in Buenos Ayres, Engines, and rules for running them, commercial review and news in general. It is printed in the Spanish language.

THE Board of Trade of Chicago are taking steps toward erecting the most palatial Chamber of Commerce building in the world, and there is little doubt but that the project will be materialized soon. The plans so far as considered indicate that the building will occupy a half block of ground, and be eight stories in height. The cost is estimated at \$4,000,000 and it is believed that the offices can be rented so as to produce a revenue of seven per cent on that sum.

THE *American Brewers' Gazette*, of No. 194 Fulton street, N. Y., is one of our valued exchanges. It is edited and published by Mr. John Flinthoff, a gentleman of great ability and thoroughly conversant with the technicalities of the brewing business. Mr. Flinthoff is about to publish a "History of the American Breweries," which will be a valuable acquisition to the brewer's library. We commend the *Gazette* and the forthcoming "History of American Breweries" to the interested public.

FROM the report of Chief of the Bureau of Statistics, dated October 18, we learn that the total value of the exports of breadstuffs during the month of September, 1880, was \$23,881,936, as against \$35,828,848 in September, 1879. The total value of exports of breadstuffs for the nine months ending Sept. 30, 1880, was \$208,679,542, against \$176,399,946 for the same period in 1879. In September, 1880, we exported 14,262,655 bushels of wheat, and 607,542 barrels of flour; in September, 1879, 25,593,628 bushels of wheat and 517,354 barrels of flour.

CHAS. RANDOLPH, Secretary of the Board of Trade, has completed the census of the labor and capital employed in Chicago manufacturing establishments, and returned the same to the United States Census Bureau. There are 3752 manufactories, employing 113,507 hands, and representing a capital of over eighty million dollars. Number of women employed, 15,718, and boys and girls under sixteen, 4,797. The value of the product made per annum is \$249,000,000. Value of material used, \$178,000,000. The wages paid are \$37,000,000.

FIFTY years ago the 15th of last September the first railway on an extended scale, the Manchester and Liverpool, was opened for business. The little Stockton and Darlington road had been opened four or five years before, but that was a short line for local purposes. The Manchester and Liverpool was the commencement of railway building on a large scale for the transaction of heavy traffic. In the same year that it was completed, 1830, the United States could boast of 26 miles of patch-work lines; and a short iron tramway for vehicles, drawn by horses, in Austria, completed, probably, the railway system of the world. What an incredible change in fifty years—over 200,000 miles of railways now in operation, and each year increasing the number by thousands of miles!—*Railway Age*.

PRESERVING GRAIN CARGOES IN BULK.—A new system of preserving cargoes of grain in bulk has been tested at Antwerp, in the presence of the commercial bodies of that city, which, it is claimed, will keep grain in a state of perfect preservation for a year or longer. The principle consists in covering the floor on which the grain rests with perforated sheet-iron and forcing a current of dry air through the grain. Analogous to this is a suggestion made in a recent number of the *Railway Review* for preserving grain in transit. The *Review* starts out with the assertion that while grain itself is the most solid and dry of all produce, "it is certain to deteriorate in railway carriage from 1 to 5 per cent. between Chicago and New York, and if shipped the least damp it would be a total loss." To avoid this danger of sweating while in transit, it suggests that a means be contrived whereby the air created by the motion of every fast-moving train shall be passed through the wheat or corn, so that it may carry away captive every particle of moisture, and in so doing leave the grain cool and incapable of further ferment. As the motion of the train forms the mechanical force, it is alleged that this can be done "without money and without price."

SUBSCRIBE for the U. S. MILLER.

An International Milling Exhibition in England.

We have recently received the following circular letter.

NATIONAL ASSOCIATION OF BRITISH AND IRISH MILLERS,
61 MARK LANE, LONDON, Sept. 30, 1880.
Editor *United States Miller*.

I am directed by the council of this association to inform you that they have made arrangements for the holding of an international exhibition of flour mill machinery at the Agricultural Hall, London, in the early part of the month of May next.

This is the first exhibition of the kind that has been attempted in this country, and from the large amount of space that is available, and the very central position of the hall, as well as the great facility of access to it, the council has every reason to believe that a most successful show of everything relating to modern milling will be the result.

It is not the intention of the council to attempt in the present experimental stage of the milling industry anything in the way of prizes or medals for machines. Ample steam power will be provided, so that each maker may be able to show the results he may promise, and every facility will be afforded visitors to use their own judgment unfettered by any official recommendation.

From the numerous promises of support that are coming in, it is fully expected that the exhibition, in addition to being the best that has ever been held, will also be the largest. I shall, therefore, be extremely obliged if you will kindly use your best endeavors to induce an early application for space, so that the committee appointed to arrange the various exhibits may make a speedy commencement of their labors. I am, dear sir, yours very obediently,

J. H. CHATTERTON, Sec'y.

We have no doubt but the exhibition will prove a great success and will be very full and complete. It is already assured that many prominent American manufacturers will be fully represented. If suitable arrangements are made for reduced fares it is also more than probable that a good many of our well-to-do millers will also attend. The cost of the trip, however, will not be considered by our millers as much as the time it will take. It is characteristic of our business men to desire to save time as much as possible, and when the milling business is prosperous as it is now, verily "time is money." We shall keep our readers advised of the progress of this important enterprise.

The Milling Newspapers of the World.

The total number of milling papers published at present in the world is twenty, of which eleven are published in the United States, two in Great Britain, three in Germany, two in Austria, one in France, and one in South America. The object of all these papers is to supply millers with needful statistics, trade news, technical information, and to explain and advertise new machinery and processes useful to the milling industry. The United States is more fully supplied with this class of literature than any other country. The names of the papers published in this country are as follows: THE UNITED STATES MILLER, Milwaukee, Wis.; THE *American Miller*, Chicago, Ill.; THE *Deutsche Amerikanische Mueller*, Chicago, Ill.; THE *Milling World*, Buffalo, N. Y.; LEFFEL'S *Milling News*, Springfield, Ohio; THE *Miller and Millwright*, Cincinnati, Ohio; THE *Millstone*, Indianapolis, Ind.; THE *Grain Cleaner*, Moline, Ill.; all of which are published monthly. THE *St. Louis Miller*, St. Louis, Mo., is published semi-monthly; THE *Northwestern Miller*, of Minneapolis, Minn., and THE *Milling Journal*, of New York, weekly; and THE *Millers' Magazine*, Chicago, Ill., quarterly. These papers all seem to be enjoying a very good business, and are recognized as indispensable to the trade. In Great Britain we find THE *Miller*, and THE *Corn Trade Journal and Millers' Gazette*, both published in London. In France the only milling paper is LE *Moulinier*, published in Paris. In Germany we find the *Deutsche Mueller-Zeitung*, *Allgemeine Mueller-Zeitung*, Berlin, and *Die Muehle*, Leipzig. In Austria we find the *Ungarische Muehlen-Zeitung* (Hungarian Millers' Journal), in Budapest, and the *Austro-Hungarian Miller*, in Vienna.

In South America there is but one paper devoted to the flour milling interests. It is published in the Spanish language at Buenos Ayres, in the Argentine Republic, and is called by the somewhat extensive name of *Revista Mensual para los Molinos*.

From all indications mill owners have renewed confidence in the future of the milling business. A great many are preparing for an increased business by enlarging and improving their mills. Nurdyke & Marmon Co., of Indianapolis, Ind., say that business has never before been so good with them at this time of the year.

Case's Improved Middling Purifier.

We are always pleased to lay before our readers anything new touching the milling interest if it is possessed of true merit. Nothing in the mill is receiving so much attention at the hands of millers and inventors as the purifier. And nothing that has been added to milling of late years is of equal importance to the miller. We bring to the notice of our readers a purifier, which, while not entirely new, may be new to many of them, and which appears to combine many new and special points of merit not heretofore offered to the milling public. This purifier has been on the market for some time, and is to be found in some of the largest and most progressive mills in the country, and the company, in their illustrated circular, call attention to the praise that has been given it by their customers, covering a wide scope of territory and including many of the best mills, which is flattering to the manufacturers. In calling attention to the Case purifier, made by the Case Mfg. Co., of Columbus, Ohio, we cannot, of course, enlarge upon it to the extent the manufacturers do, whose faith in their machine is evidenced by the strong language and many statements and propositions, which could only come from the knowledge of past successes. Beside the general claim that the Case machine is meeting with favor wherever known, both by millers and proprietors, we enumerate some of their special claims as follows:

1. That it is a double, triple or quadruple machine, that is that a number of purifiers separate and distinct from each other may, under their patents, be put in one frame, all of which operate easily and perfectly. They claim they can put a purifier in every 3½ feet of perpendicular space. The great advantage of this in crowded mills need not be dwelt on. This feature alone would cause every miller to investigate the claims of the manufacturers.

2. Their patent cloth cleaning device they claim to be superior to any method ever invented. While a description of it in detail cannot be attempted here, the statements of responsible parties who are using it will arrest the attention of every one who sees them, as so much has been written and invented to obviate the cloth cleaning difficulty, so many inventions have proven failures, that any new method, coming highly recommended by those using it, as this is, will surely be welcomed by millers generally. It is claimed that no hand brushing is done on the Case purifier.

3. The Case machine dispenses with the roller commonly used to accomplish the feed, and substitutes in its place a patented automatic feed box, a simple arrangement by which the middlings are very evenly distributed over all the width of the cloth in the most perfect manner. It starts and stops with the mill, and does not spill a quantity on the cloth, when the machine stops, to clog and choke up again when started. The demand for this patent feed box has been so great that the company are making a specialty of supplying them for other machines.

4. It dispenses entirely with the old-fashioned screw conveyor, and has in its place conveyor boards directly under the cloth, which shake with it, and so arranged that the returns may be cut off at any point desired. This is a great point gained as it does away with a large amount of gearing, belting, pulleys, etc., all of which absorb power and are expensive and annoying.

5. The space immediately under the screens is open, so that the miller can see and handle the purified middlings with the greatest convenience, and can determine when to increase or decrease the blast.

6. By the cut-off used in the Case machine the returns may be drawn to within a half inch from any part of the machine in a moment, by simply drawing a valve. Millers accustomed to the use of purifiers will appreciate this.

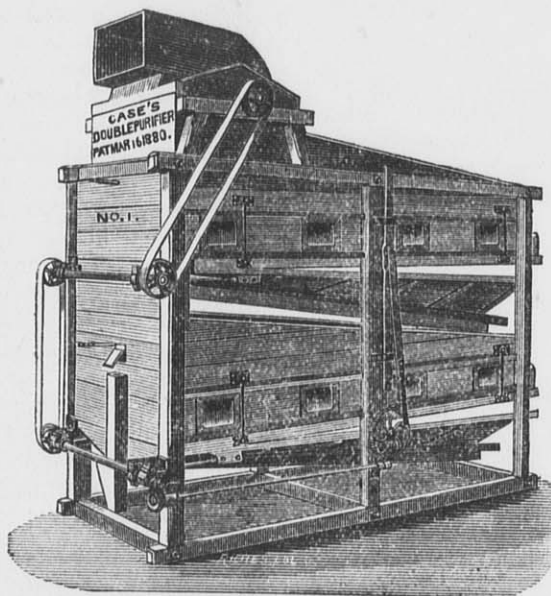
7. The fan in this purifier is so arranged that it can be made to blow either way, a great advantage in making connection with dust room, and one which often saves much expense in spouting and elevators.

8. Much is claimed for this machine on account of the control it has over the blast. The most convenient and efficient appliances accomplish this result. By simply drawing a valve stem the blast on any part of the screen can be changed in a moment. The practical miller cannot fail to be pleased with this arrangement, as the blast performs so important a part in purifying middlings. Owing mainly to this complete mastery of the blast, they claim a very small amount of waste in the dust room.

9. A new feature for the first time introduced on this machine, is a small bracket, suspended opposite each window, inside the suction chamber. The material accumulating on these brackets, indicates at all times just what is being carried into the dust room, a convenient and valuable arrangement.

10. The manufacturers claim also for the Case purifier, superior mechanical construction. They fully appreciate the importance of this and they assure us that it is well and heavily built throughout, and that every machine is fully tested before leaving the factory. They evidence their faith in it by publishing a statement in which they guarantee that their double machine will do as much work and do it as well as any two machines of any other make. This is certainly a strong announcement and they cannot hope to keep it long before the public if it be untrue. The purifier being double it practically cuts the price in two. Their price list being for two purifiers in one frame less than that for one of other standard machines, an important item to all millers.

With the principles above enumerated—which they claim are fully protected by patents which infringe on no inventors rights—embodied in their machine, the Case Purifier Co. cannot fail to attain success if it is in the hands of a concern possessed of abundant



CASE'S IMPROVED MIDDLING PURIFIER.

capital and business energy, which we are assured is the case. All in need of purifying machinery are invited to correspond with the company at Columbus, Ohio.

Millers' Law in Wisconsin.

CONCERNING MILLS AND MILL-DAMS.—CHAPTER XLVI.

SECTION 3374. Any person may erect and maintain a water mill, and a dam to raise water for working it, upon and across any stream that is not navigable, upon the terms and conditions, and subject to the regulations hereinafter expressed.

SEC. 3375. No such dam shall be erected to the injury of any mill lawfully existing, either above or below it on the same stream, nor to the injury of any mill site on the same stream, on which a mill or mill dam shall have been lawfully erected and used, or is in process of erection, unless the right to maintain a mill on such last mentioned site shall have been lost or defeated by abandonment or otherwise, nor to the injury of any such mill site which has been occupied as such by the owner thereof, if such owner, within a reasonable time after commencing such occupation, completes and puts in operation a mill for the working of which the water of such stream shall be applied; nor shall any mill or dam be placed on the land of any person without such grant, conveyance or authority from the owner, as would be necessary by the common law, if no provisions relating to mills and mill dams had been made by statute.

SEC. 3376. The height to which water may be raised, and the length or period of time for which it may be kept up in each year, shall be liable to be restricted and regulated by the verdict of a jury, as provided in this chapter.

SEC. 3377. Any person whose land is overflowed, or otherwise injured by any such dam, may obtain compensation therefor in a civil action, as provided in this chapter, against the owner thereof, or the owner and occupant jointly, in the circuit court for the county where the land or any part thereof lies, but in no other manner; but no compensation for any damages sustained more than three years before the commencement of such action shall be recovered therein; except as otherwise prescribed in this chapter the proceedings shall be in all respects as in other civil actions.

SEC. 3378. The complaint in such action shall contain a description of the land alleged to be flowed or injured, and of the interest of the plaintiff therein, and such statement of the damages and demand for judgment that the record of the case shall show with sufficient certainty the matter that shall have been heard and determined.

SEC. 3379. The defendant may, in his answer, deny that the plaintiff has any interest in the land alleged to be flowed or injured, or allege that the defendant has a right to maintain his dam for an agreed price or without any compensation, or any other matter which may show that the plaintiff cannot maintain his action or is not injured by such dam.

SEC. 3380. If the defendant shall not appear, or no answer or demurrer be filed, the court shall order a jury to be impaneled to hear and determine the matters of the complaint.

SEC. 3381. If, upon the trial of any issue of fact, in such action, or upon a default, the jury shall find that the plaintiff is entitled to recover any damages, they shall assess the amount of such damages sustained within three years next preceding the commencement of such action and down to the time of rendering the verdict, or, if the title of the plaintiff shall have accrued within such three

the dam in question; and if the plaintiff shall not accept the same, with his costs up to the time, but shall proceed in the action, he shall be entitled to the costs only up to the time of the tender, and the defendant shall be entitled to recover his costs afterwards, unless the plaintiff shall recover greater damages or greater annual compensation than was so offered.

SEC. 3385. If the plaintiff shall accept the amount so offered for past damages and the future annual compensation, he shall have judgment accordingly, and also for his costs up to that time, and the judgment shall have the same effect as if it had been rendered upon the verdict of a jury impaneled according to the provisions of this chapter; or the plaintiff may accept either the sum tendered for past damages, or the offer for future annual compensation, and proceed to trial on the residue of the complaint, under the same liability for costs as before provided.

SEC. 3386. If in such action, the jury shall decide that the plaintiff is not entitled to any annual compensation for future damages, the judgment therein shall be no bar to a new action for damages alleged to have arisen after the former verdict, and for the compensation for damages that may be thereafter sustained.

SEC. 3387. The plaintiff in such action, at any time within three months after the verdict is rendered therein, may elect to take the sum in gross so awarded by the jury, for the right to maintain and use the dam forever, instead of receiving the annual compensation therefor; and if he shall make such election, he shall, within the said three months, cause the same to be entered on the record of the case in the clerk's office; if the plaintiff shall so elect, the defendant shall, within three months after such election is entered of record, pay to the plaintiff, or secure to his satisfaction, the sum due for the perpetual right to maintain the dam, with interest from the date of the verdict; after the expiration of said three months, such defendant shall lose all benefit of the provisions contained in this chapter, until the payment of said damages and interest.

SEC. 3388. If the plaintiff shall not, within the said three months, cause an entry of his election to be made upon the record, as before provided, he, and all persons claiming under him, shall be entitled to demand and receive from whoever shall be the owner or occupant of the mill, the annual compensation so established by the jury, so long as the dam shall be kept up and maintained, unless the sum due in that behalf shall be increased or diminished, in a new action, as hereinafter provided.

SEC. 3389. The person who shall be entitled to receive the said annual compensation, or gross damages, shall have a lien therefor, from the time of filing the notice of the pendency of the original action, on the mill and mill dam with their appurtenances, and the land under and adjoining the same, and used therewith; but such lien shall not extend to any sum due more than three years before the commencement of an action therefor. Such person may maintain an action in the circuit court for such annual compensation, or gross damages, against the person who shall own or occupy the mill or dam when the action is brought, and may therein recover the whole sum due and unpaid for three years then last past, whoever may have owned or occupied the mill or dam during that time, with costs of the action, irrespective of the amount recovered.

[TO BE CONTINUED.]

HOW TO EXERCISE.—Regularity and constancy in the pursuit of exercise are important, says the *Lancet*, if perfect health is expected to result from its employment. It is far better for men to lead altogether a sedentary life than to be irregularly active. This caution is the more needed since the transition from sedentary habits to arduous and exhausting physical labor is of frequent occurrence. Again, the transition from active habits to sedentary pursuits is generally accompanied by a marked disturbance of health, since organs roused to the full activity by the stimulus exercise given to them are liable to be functionally deranged when that stimulus is withdrawn. This, perhaps, would not be so frequently observed if, instead of relapsing immediately, as is frequently the case, into idle habits as far as exercise is concerned, an attempt was made to engage regularly, for however short a time, in some pursuit which would insure brisk muscular movement, so that the health acquired by exercise during the vacation should not be lost; and, moreover, that the body, when the next holiday period comes around, should be found in a fair condition to undertake the increased physical strain thrown upon it.

UNITED STATES MILLER.

E. HARRISON CAWKER, EDITOR.

PUBLISHED MONTHLY.

OFFICE, 62 GRAND OPERA HOUSE, MILWAUKEE, WIS.

SUBSCRIPTION PRICE.—PER YEAR, IN ADVANCE.
 To American subscribers, postage prepaid..... \$1 00
 To Canadian subscribers, postage prepaid..... 1 00
 Foreign Subscriptions..... 1 50

All Drafts and Post-Office Money Orders must be made payable to E. Harrison Cawker.
 Bills for advertising will be sent monthly unless otherwise agreed upon.
 For estimates for advertising address the UNITED STATES MILLER.

[Entered at the Post Office at Milwaukee, Wis., as second-class matter.]

MILWAUKEE, NOVEMBER, 1880.

A GERMAN REMEDY.—A simple means for keeping flies away from horses it is recommended to moisten their hair, especially of their tail and nostrils, with a strong decoction of hazel-nut leaves. By means of this decoction the eggs which the flies lay on the skin of horses, are also destroyed.

Personal.

Among the parties favoring the UNITED STATES MILLER with a call, during October, we mention the following:

Robert L. Downton, of Minneapolis.

Mr. C. E. Wenborne, of Buffalo, N. Y., editor of *The Milling World*.

Mr. J. S. Karns, representative of Messrs. John T. Noye & Sons, of Buffalo, N. Y.

Mr. Henderson, of Buffalo, N. Y.

Mr. W. H. Blackmer, representing Messrs. Howes, Babcock & Co., of Silver Creek, N. Y.

Mr. Wheatley, representing Messrs. Huntley, Holcomb & Heine of Silver Creek, N. Y.

The Milling Industry in America.

Mr. Josef J. van den Wyngaert, who was commissioned by the Prussian Government to make a report concerning the Millers' Exhibition in Cincinnati, is said to have expressed the following opinions on the American industry of milling: In the different mills he had visited in the Eastern part of the United States he had found many excellently constructed, but also many primitive ones, built 30 or 40 years ago. America had undoubtedly been the most advanced country on earth in regard to milling, and when anything was said at that time about American mills in Europe, as a matter of course only the best and most excellent ones were meant. Since then things have changed. While America, as well as England and France, had come to a standstill, Germany and Austria had excelled remarkably in the progress of this branch of business. The construction of mills in these two countries is to-day much better than that of American mills, and it was only in the last few years that America had made efforts and adopted the improvements of the Germans and Austrians, and taking them for a basis had made further progress. Thus the roller system, for instance, for the grinding of grain, had been transplanted from Germany to America. We had first met with it in Naples, and introduced it into Germany in 1874, from whence it had only in the very last years found its way into America.—*Oesterreichische Ungarische Mueller.*

American Flour.

Die Muehle, a Berlin paper, makes the following comments upon the American so-called "Patent Flour," the finest flour produced in America:

In appearance it resembles a dark No. 4 Pesth flour; when a dough is made of it, however, it resembles a fine No. 3. It is an established fact with us, that the coarse flour looks darker than the same quality flour ground down fine. This is based upon the same principle that larger particles throw larger shadows.

This flour feels like a coarse wire to the touch. When kneaded to dough, however, the full whiteness of the flour appears, but as stated above, it does not come up to the whiteness of our fine flours. A loaf of bread prepared from the flour raises well, but not near as high as we are accustomed to see in the loaves baked out of our flour. The flour also absorbs considerably less water. Newly made bread is very fragrant and palatable. The contents of gluten of this flour exceeds that of the corresponding quality of the Pesth flour, which by no means signifies that our grain contains less gluten than the American grain. As is well-known, the manner of grinding customary with us, has the result that the finer qualities of flour contain less of gluten than the darker qualities. No. 3 consequently contains less gluten than No. 6 or No. 7.

Americans produce three, or to the most, four different qualities of flour from the grain, in which the whole gluten is then contained. On this account all the different qualities of American flour contain more gluten.

On the other hand the gluten obtained from Hungarian flour is of a better quality than that obtained from American flour. The latter is light and looks very well, it is true, but it is brittle and our housekeepers could make no use of it in the preparation of some of their favorite dishes.

Neither would our bakers be satisfied with it, for as is well-known, the rising of the dough does not depend so much upon the quantity as upon the quality of the gluten contained in the flour. Besides this the brittleness of the gluten has the effect of causing milk and butter pastry, prepared from American flour to become covered with cracks, notwithstanding the fact that the quality of our yeast is well adapted greatly to improve the quality of the dough.

The American vs. Russian Grain Trade.

In the *Export*, the organ of the Society for Commercial Geography, and the promotion of German interests in foreign countries, we find an article on the exportation of grain from Russia and the competition of America, which may be of interest to the general reader, and which we will, therefore, here quote:

"For some time past the Russians, but more especially the agriculturists and the exporters of Southern Russia, have regarded the rapid increase in the importation of grain into Europe from North America with growing anxiety, because it increased at such a rate that it threatened in time to ruin their grain trade. On account of this feeling it was decided to send Mr. Orbinski, director of the commercial school at Odessa, to America in the spring of the year 1879, in order to investigate the production and exportation of grain. Before he could return and report, however, the South Russians were terrified by the unexpected news conveyed to them by an Odessa paper, in January, 1880, that the Yankees were not content with supplanting the Russian grain from the European market, but even had the audacity to import grain into Russia itself. 'We should pronounce the man insane who would tell us about the importation of grain into Russia,' continued the *Pranda*, 'and should not have published it, if it had not unfortunately been confirmed by another Caucasian paper, whose statement was even more alarming.' It referred to the *Tifliser Boden*, which says: 'We have heard that a few days since grain from America arrived at Poti, and some had already been brought to Tiflis. It is said this grain is cheaper than the Russian grain.' At the same time the 'American paper' in Droeba(?), confirmed this: 'It is only natural that this news created quite a panic in Russia, and especially in Odessa, for the Russians had become accustomed to look upon the exportation of grain as a monopoly in Russia (in 1879 Russia exported 39,729,395 tschetwert, one tschetwert = about seven bushels), and Odessa alone exported almost 4,000,000 tschetwert, while now, according to Russian papers, America suddenly competed with an importation of 26,201,500 hectoliters of wheat and corn into England and the European continent from September, 1879, to January, 1880, and at lower prices than Odessa could furnish it. The natural consequence of this state of things was that the Government was compelled to consider the matter, and accordingly a meeting was held January 29, in Petersburg, at which the directors of the financial ministry, of the railroad departments, of the several private banks, and the State bank, the representatives of large grain dealers, and others, took part. Before this assembly Mr. Orbinski made his report, giving the result of his investigations in America, and concluding that Russia was not at present able to compete with America. Orbinski supported his opinion principally by referring to the extensive railroad connections in North America, according to which, in some counties, no farmer was more than five miles distant from the railroad, as well as by describing the many new improvements (as grain elevators, etc.) which were universally adopted in North America, but which were yet entirely unknown in Russia, and by means of which the transportation was rendered infinitely more simple and less expensive. Impelled by the information received, the Committee passed the following resolutions:

1. To adopt measures for improving the manner of farming in Southern Russia.
2. To agitate against the practice of allowing fields to lie fallow.
3. To petition to the government for the

connection of several railroad centres, in order to facilitate the transportation of grain, and for the building of several necessary new railroads.

4. To introduce such methods and improvements as render America so formidable a competitor (elevators, etc.).

If all this could be carried out in such a country as Russia, it would again render the Southern Russian grain market able to compete; yet such measures of the Government would meet with unsurmountable obstacles from its officials as well as from the farmers and dealers of grain. In Odessa, where there are no less than twenty-seven commercial houses exporting grain, and thousands of people earn their living thereby, improvements have already been thought of and considered. As yet, the greater part of the excellent wheat, which is chiefly shipped from there, has been stored in immense palatial buildings in the central part of the city, from whence the transportation of it to the railroad warehouses and to the dock, which lies 140 feet below the level of the city, costs often more, but always as much as the whole freight across the sea to England, in consequence of the high wages of laborers and the primitive mode of transportation. More recently the road to the railroad warehouses has been paved with flagstones to a distance of from two to three km., to prevent the grain trucks from sinking in the mud during the spring and fall months, and now the horse car line will probably soon be completed, which is designed chiefly for the transportation of grain from the railroad to the ship. Further, the building of thirteen three to four story granaries has been projected and laid before the common council of Odessa, the cost of which is estimated at 7,000,000 rubles. But even if the commercial world of Southern Russia would energetically adopt the facilities enjoyed by its competitor, it would yet be necessary that the agricultural population would do the same, and make use of machinery for the production of their grain in the most extensive way. It may be ages before such a revolution in the agricultural department, the modes of communication, and commerce is completed, but America needs only decades to make Europe its grain market since it has an immense territory which can be cultivated, makes use in such cultivation of the best machinery, and in the most extensive way, and at the same time enjoys the benefits of a most practical and cheap mode of transportation."

What the World Owes to Mechanics.

How much the world owes to mechanics and their labors was set forth by Mr. Dudley Blanchard, in an interesting discourse made by him recently before a scientific society at the Cooper Institute, in this city. The following is the initial portion of Mr. Blanchard's remarks, which he prefaced by saying that he uses the term mechanic in its broadest sense, so as to include brain workers as well as hand workers—both him that contrives and him that constructs.

First-rate mechanics, he said, as has been said of poets, are born, not made; at least the constructive faculty in its highest development is partly a gift of the gods. To become a mechanic of the highest order, one must be born with a passion and adaptation for exercising the constructive faculties, and be educated by observation and experience up to a high degree of perfection.

When the intense delight of whittling a shingle impels a boy to thrust his tongue into his cheek, mark him as a mechanical genius. He may whittle away life to little purpose, perhaps, but a wealth of satisfaction and creative pleasure are in store for him. See how, with a relish as keen as his jack-knife, he severs the long and regular shavings, rounds the point, or corrugates the edges of his shapely shingle! Waste not your pity on this low manipulation, ye men of self; he has a source of infinite pleasure that you can never appreciate.

The true mechanic is a child of confidence and simplicity; and among the selfish elements of the commercial world he often gets but small share of the results of his own skill. If what the mechanic has done were stricken from the face of the earth, we should have little left of the outward manifestation of civilization. He serves us from the cradle to the coffin; yea, from the forceps of obstetrics to the monument of commemoration. From the crowns of our heads to the soles of our feet we display his handiwork. From the top of the chimney to the bottom of the well he administers to our wants. If we take the wings of the wind to fly to the uttermost parts of the earth, we shall find that the wind has no wings

that we can fly with except such as are the products of mechanical skill.

If Solomon, in all his glory, was not arrayed like one of the lilies of the valley, he at least furnished the nearest analogy, in the mind of one author of ancient literature. But all the glory of Solomon's array was due to the subtle fingers and fertile brains of some dusky manipulator, to whom literature, both ancient and modern, has given the cold shoulder.

The best mechanics are usually quiet modest and unobtrusive, spending their lives in congenial employment, the greatest remuneration of which is the pleasure it affords. The active and thoughtful mind, the skillful hand, the quiet and patient industry that characterize the true mechanic get little notice or commendation from the public; while the fighting men, the talking men, the writing men, the walking men, the starving men, the players and mountebanks, the quacks and charlatans, all get a share of notice and a meed of praise.

It now and then happens that an inventor starts a sensation that brings down upon him for a time an avalanche of notoriety; but he that is thus forward is usually the worst kind of a fraud and humbug; while the conscientious searcher after improvement toils on in obscurity, unhonored and unsung. But the neglect of the world does not trouble the true genius of construction. He does not seek notice; he does not expect it. The pleasure of an employment in keeping with his nature is his sufficient reward.

A popular writer of a generation that has passed puts this question into the mouth of his hero:

"Moves our free course by such fixed cause
 As gives the poor mechanic laws?"

The poet appears to have supposed that the laws of mechanics were a code binding upon that guild only, and in no wise affecting warriors, kings and heroes. But the progress of time has turned the tide. The poor mechanic, by studying the laws of fixed causes, has arrived at definite results of comprehensive potency. The hero and the warrior are nothing without the appliances that the mechanic alone can furnish. The pride and prowess of Fitz James as a champion are gone. The poor mechanic has constructed a long tube of steel, fitted with spiral grooves and accurately sighted, with which he can pop an ounce of lead through the King as far as he can see him.

The mechanic is compelled by the necessities of his pursuit to yield a loyal devotion to the truth as far as it applies to his work. He is encompassed about, and his movements are bounded and defined by a cordon of inexorable facts which he cannot with impunity disregard. He must know, and to know he must measure what he manipulates. Let him cut too long or too short; let any of his angles or lines be in error; let any of his many manipulations prove faultily set; let the roof leak, or the window creak, or the door jar—every failure is a standing witness against him, and no one is willing to cover any of the faults of his handiwork with a mantle of charity, but an indignant clientage pursue him with vociferous reproaches. And in this atmosphere of injustice and uncharitableness he can only get satisfaction by sloth, delay and procrastination, which are sure to leave behind ineffaceable marks as a record of his incompetence.

How different with the fortunate practitioner of a liberal profession! The preacher may preach any doctrine he chooses. He may preach unitarianism, trinitarianism, or polytarianism; universal salvation, universal damnation, or universal annihilation; or any mixture or compromise of any of these ingredients; he may kaleidoscope his imagination into ten thousand different forms; and, provided he is cautious enough to defer his favorite catastrophe to the far future, his dogmas are safe from refutation. No one can corner him or bring his work to the test of any standard or rule except the elastic and uncertain one by which he has constructed it.

The medical practitioner may practice allopathy, homoeopathy, hydropathy or any other pathy that the profession may happen to be enriched with; and if he has sense, experience and skill enough to let nature have a fair chance, he may become popular and wealthy, notwithstanding the readiness of his rivals to denounce his system as false and pernicious.

And with the lawyer, it is in his favor rather than against him that he is able to make the worse reason appear the better. According to the popular estimate, it is more credit to win a bad case than a good one, and success delights his soul in a corresponding ratio.—*New York Scientific News.*

Nordyke & Marmon Co., of Indianapolis, Ind., are building a new mill for Castle & Basore, at Cottage Hill, Ind.

General Meeting of the German Millers' Association at Dresden.

The thirteenth annual general meeting of the German Millers' Association was held in Dresden on the 6th September and following days. Mr. J. J. Van den Wyngaert, the President, in opening the proceedings said:

GENTLEMEN—Fifteen years ago there assembled in this town some thirty to forty men, with the intention of bringing about a union of the German millers. The idea conceived at that meeting took a definite form two years later in the founding of the German Millers' Association, which was at once joined by more than 800 millers. After another two years, when it had developed into vigorous youth, it received, in Leipzig, in addition to the approval of the men, also that of the fair sex, to whom we are indebted for the Association banner, which was to protect and strengthen the Association in its wanderings, then commencing at Leipzig. Eleven years have passed away since then, and the Association has wandered through all parts of Germany, and to-day it piously greets the spot where it first saw the light."

The meeting was then declared open, and the Mayor welcomed the assembly to the city, which he said must have the most lively sympathy for an Association with which they stood in such close personal connection. He trusted their deliberations would be accompanied with success.

Mr. Van den Wyngaert, who read the report of the work of the Association during the past year, expressed his regret that some of the statistical work had got behindhand during his absence in America. In referring to the grain and flour duties, he drew their attention to the great damage suffered by the trade in North Germany, owing to the difficulties placed in their way by the Government. Another question which had excited great interest for many years, viz., the establishment of a technical school for millers, had at length been brought to a satisfactory conclusion. Their effort had been directed to calling this institution into existence in connection with an establishment under Government control, and not as a private school. Their thanks were due to the Minister of the Interior for his assistance, and he hoped by Michaelmas of the present year a German technical school for millers would be opened in Chemnitz.

The next paper on recent milling progress at home and abroad was read by Mr. Oscar Oexle, C. E., of Augsburg, and was as follows:

Gentlemen—No other branch of industry has probably had such great and important stages of progress and development in so short a time as the milling industry of our days, and characteristic of the tendency of our times; the movement has not taken place in our country alone, but agitated in an extraordinary manner by the milling public of the whole civilized world. There were several causes which opened the way to this powerful and progressing movement, and the principal agents for it are the following: Firstly—The increasing demand for high-class flours, free of bran and woody fibre; glutinous middlings flours, which from year to year becomes larger, partly from the increasing luxury of our society, and partly, if not chiefly, from the fact that flours free of woody fibre and bran have proved to be more nutritive in spite of the opposite opinions prevailing on this subject. This assertion is, however, to be taken only in a relative way, as the results of chemical analysis have proved different, and have shown that the most glutinous parts of the wheat kernel are in the outskirts of it.

In practice the more or less nutritious qualities of human aliment will be tested by the amount of available physical strength they supply to the body, and we find, indeed, that this is proved by the large and increasing demand for high class flours, especially in those districts where the laboring classes have to exert great physical power, as in the iron and coal mining districts of England, Scotland and the Eastern States of America, the mining districts of Germany, France, etc. This is easily explained by the fact that the heat or power required for the digestion of the bran particles in the human stomach exceeds considerably the nutritious qualities of them, and our tendency of to-day to produce high class flour free from any woody fibre, if possible, is fully sustained to be right and of great national economical importance by its results, which enable us to gain from the separated bran particles highly nutritious and easily digestible substances by feeding with them our domestic animals (cattle, pigs, etc.), whose digestive organs are far better adapted for this operation.

The second cause of progress in milling was

the increasing consumption of breadstuffs and the declining result of our harvests, which were the cause of most formidable importations of grain, mostly derived from countries producing hard, glutinous wheats, which required a different way of treatment for their reduction into flour than heretofore in use.

Thirdly, one of the most important stimulants of the development of the milling art was the successful competition of other nations in our markets, which, in spite of the high freights and duties, and other obstacles, succeeded in gaining a predominating position in consequence of their refined flours.

These facts gave certainly the first impulse to progress, and we find that some ten years ago, and even before, some enterprising millers had made efforts to improve their old style of milling by substituting all kinds of machinery in their opinion more suited for the purpose. Still these were only few, isolated and partial, and it was only by the introduction of the roller system to the general milling public, in the great metropolis of milling, Budapest, promoted by Mr. Frederic Wegmann, of Zurich, in the year 1874, that the movement began to spread over the whole civilized world, and to draw the attention of even the smallest millers to this new mode of milling. The excitement produced was enormous, and more so by the fact that at the beginning of the movement the existence of the old and venerable millstone was questioned, and seemed endangered.

It is interesting to state that this introduction of the roller system was not the revelation of a new or novel invention, but that the theory and the successful use of it had already been in practical operation for about 50 years, and it is really astounding to think that such an innovation which now affects most intensely our milling interests, should have been, for nearly half a century, quite forgotten, and the only explanation for this extraordinary fact is that the above named main progressive agencies had been dormant during that period.

In Sulzberger's time (that is the name of the original inventor of the roller system, he also was a Swiss and a native Zurich) the commercial traffic was only of a local nature, and had not the international character of our days; the milling art was partly still in the hands of the guilds, and the demand for high class flour was very small, and in consequence the roller system was not as successful as in our days. The objection which is often brought against the Sulzberger roller system is that the construction of the Sulzberger rolls, and the materials used in the rolls, were the cause of their non-success does not stand, because a brilliant example for its efficiency can be shown: the old Pesther Walzmuehle, which was built at the end of 1830, in Pest, and arranged entirely on the Sulzberger roller system, worked successfully, and paid from year to year for a long period of time from thirty to fifty per cent dividend to its shareholders. This mill was fitted up principally as our newest roller mills are now arranged; they used grooved rollers for the granulation, partly the same rolls for the regrinding of the bran and coarse middlings, smooth rollers for the reduction of coarse middlings, and the same for the entire reduction and grinding of semolina and even the finest middlings, and this was not done on a small scale, but they produced at first daily about 800 cwts. of flour, and continued to enlarge the establishment to its present magnitude. It is perhaps one of the few mills which have adopted and used the roller system to its fullest and most beneficial extent, employing the rolls up to the last stages of the milling operations—a practice which is not customary in all the other Pest mills.

Notwithstanding this, it is right to state that the general use of the Sulzberger roller system was partly rendered difficult by its rather complicated construction, and as everybody knows, progress has brought it to a high standard of efficiency, so that the roller machines of our days excel both in workmanship and material.

Sulzberger's application of three pair of rolls, one above the other, made his machine rather complicated and costly, and the great merit due to Mr. Wegmann is his having simplified this arrangement by devising the crushing to be performed through only one pair of rolls. The innovations which Wegmann was the first to introduce into roller construction for milling purposes were—firstly, the use of only one pair of rolls during one crushing action; secondly, the application of the self-acting pressure of the rolls; and, thirdly, the use of a material with a hard and gritty surface like porcelain, and these were the most important items, and the main stimulants for

the rapid introduction of the roller system throughout the whole world.

This gentleman has pushed the roller question with an enthusiasm, sacrifice and labor indeed worth notice and praise, and, no matter to what party you belong, you must acknowledge that Mr. Wegmann deserves the thanks of all millers for what he has done. He has revolutionized the milling system, or at least he has contributed a good deal more than anybody else to the grand and extraordinary development it has reached in our days.

At the beginning of the movement the tendency was very much for the use of rollers with equal speed, the so-called Schleppwalzen, or frictional rollers, which were worked by mere pressure and friction, and with the wish to totally avoid the tearing action of millstones; these extreme views were adopted, maintained and defended by their partisans with great tenacity. The equal speed of the roller surfaces when reducing semolina into smaller particles is surely good, but the small differential speed afterwards applied to the use of rollers for the crushing of middlings, and in most other grinding operations, has not the effect of tearing the woody fibre as claimed by many adversaries of this principle, but simply adds to the capacity of the machines and avoids caking, so troublesome when using smooth polished roller surfaces with equal speed.

Ultimately Mr. Wegmann decided to adopt this principle for his machines, which, however, was not new, as Sulzberger had already found the advantage of differential speed and used it for his rolls. Sulzberger used with success, for reducing and grinding rollers, cast iron of a homogeneous porous structure, of a good quality, and carefully moulded and cast, and I myself have used his rollers for the grinding of middlings with success. His rollers had also the advantage of being of small dimensions, and I must say that I do not sympathize with the efforts of many roller manufacturers of to-day, who try to get a large capacity of the rollers by increasing their length; the difficulty of feeding them in a proper way increases in proportion to their length, and I am sure that a time will come when the smaller sized rolls will be generally preferred. I know of many of these Sulzberger small rollers which have been over ten years in successful operation.

The differential speed for reducing middlings into flour was at first preferred and largely adopted in foreign countries, especially in Great Britain. In Budapest the grinding of middlings has been in most cases performed with millstones, even up to this time, although the efficiency of rollers shows very clearly when comparing the flour from middlings ground by rollers or stones; the lower the grade of middlings which are to be ground the more the results are to the advantage of the rollers. The latter fact was acknowledged in all those countries where low grinding (Flachmahlen) was in use, and especially in England and the United States did the millers appreciate the advantage of rollers for the treatment of middlings. This was demonstrated by the rapid introduction in both countries of Wegmann's patent porcelain roller mills, with self-acting pressure and differential speed. Several years before the introduction of roller mills into these latter countries a preparatory movement had already begun in the shape of middlings purification.

It can be said that up to the year 1870 no British or American millers, with very few exceptions, had any idea that middlings after being purified would yield a far better flour when reground than the first flour got out of the wheat, a fact which was known to us as a matter of course, and in successful operation for over a century and more. They sold, indeed, their middlings as feed, and in the year 1868 when I first went to England I made a first-class business for my employers, buying up all middlings I could get, and making contracts for several years' supply with some large millers for middlings, which I purified on a large scale, and reground them on millstones. I produced a very superior quality of flour. Of course the matter did not run that way a long time, as very soon after, the purifying of middlings began in British and American mills. In America the system of purifying middlings and regrinding them afterwards got the name of "New Process," although it was nothing else but a modified "mouture economique," or a modification of our "half high grinding."

The consequences which followed these progressing steps were of a very beneficial character, and great care was bestowed especially on the dressing of millstones, and a great num-

ber and variety of millstone dresses were invented for the purpose of producing in one operation the largest possible quantity of middlings. The stream of progress in those countries was flowing towards the high-grinding system.

More especially welcome were these new acquisitions in the Northwestern States of America, whose climate and agricultural circumstances resemble very much the vast and fertile prairies (Pustas) of Hungary. The wheat which is cultivated in those parts of the world is just as hard, flinty and glutinous as the Hungarian wheat, and is badly adapted for low grinding, which, before this, was the customary mode of operation, and the Northwestern millers were forced into the "New Process" by the large quantity of middlings, which they could not help making, even under the old system, on account of their hard wheats. The machines, however, which American genius has improved and remodelled for the operation of middlings purification, although resulting from the old system (Cabane's), are now so perfected that in my opinion they take the first rank in their class throughout the world for the purpose intended.

Some few years later the introduction of Wegmann's porcelain rollers the Pest millers began to think of the use of grooved chilled iron rollers for the granulation of wheat, and the results were so astounding and far above those got by the use of millstones that in less than a year all the large mills of Budapest had discarded their millstones and introduced grooved chilled iron rollers for the cracking of wheat throughout the process of granulation.

The improved works of Messrs. Ganz & Co., iron founders, of Budapest, whose acquaintance with the roller system they had derived by having had the agency of Mr. Wegmann's patent, and being employed in the manufacture of his machines, took hold of the movement and prosecuted the production of grooved chilled iron rollers with great energy and immense success. Soon after the introduction of grooved rollers for the purposes of granulation in the Hungarian mills, the system was adopted in the South of Germany, in all parts of Europe, in many English mills, and more especially in the Northwest of the United States, where, at this moment, the large new Washburn Mills A, B and C are in successful operation, producing daily nearly 3,000 barrels of flour, being completely fitted up with grooved rollers for the granulation of wheat, and smooth porcelain and chilled iron rollers in combination with a few mill stones for the reduction of middlings into flour, and the other final grinding operations. The money invested in this new movement has reached enormous sums, and has made a great impression on all millers.

The wish to be the first to reap the promised benefit of the new system drove many millers, and especially our millers in the South and other parts of Germany, and in other parts of the world, headlong into the new roller whirlpool; many of them did not find what they thought, and the heedless way in which the system was adopted without judgment of its qualification for the various wheats and customs in the markets, resulted in an uneasy and uncomfortable feeling in the trade, and threw doubts on the question of rollers which will be removed by-and-by, but which make for the present the position of all millers in all countries very difficult. In my opinion there are but two distinct methods of milling, the high and the low grinding system, and each is quite entitled to consideration. The low grinding system is, without doubt, the best suited for the treatment of soft and tender wheats, and the great varieties of wheats between the two classes, hard and tender, are so many that it is impossible to fix where the one begins or the other ends, and, consequently, a great variety of grinding systems will be the result.

Personally, I am of opinion that the harder the wheats to be ground the more profitable the high grinding in combination with the grooved roller system will be found; this assertion is founded on my long and practical experience. This is, however, a limit which I would not pass over, and where, to my mind, the use of millstones is not only justified, but peremptorily wanted; then I use the millstones either higher or lower according to the quality of the grain to be treated. The system resulting by higher grinding is named "Half-High Grinding" and although it produces more middlings than the low grinding system, it does not have for its aim the production of so large a quantity of semolina and middlings, and so many varieties of flour

out of one wheat mixture, as is done in the high grinding system. Hard wheats are not suitable for the low grinding system, and can only be profitably ground on the high system, because the flour produced by low grinding is dark and intermingled with inseparable woody fibre, produced by the tearing action of the millstone, by which the thin and brittle husk (bran) of the hard wheats is easily pulverised. Moreover, the quantity of first flour gained by low grinding is less on hard wheat than on tender wheat, and the larger quantity of hard middlings consequently resulting is of very low grade and very difficult to purify sufficiently.

For this class of wheats, no doubt, the grooved chilled iron rollers will have the run for a long time. In all milling systems, however, the use of smooth rollers is, no doubt, followed by great advantages, and for the reduction and complete grinding of semolina and middlings, rollers will replace in a considerably large proportion, the millstone. The regrinding of bran by rollers is also a problem which will be surely solved in a short time. The great question chiefly ventilated by us in Germany, but to a larger or smaller extent interesting to all millers of the world, is "porcelain," or "chilled iron," and this matter, I fear is brought before you so often that it is getting rather annoying and wearisome; the question, in my opinion, will only be solved by practical experience, and in many cases this or that construction, and this or that material, will suit better for a special purpose.

For the complete reduction of middlings into flour, however, my experience has brought me to the conviction that only a material gritty, porous, and sufficiently hard is fit for the purpose, and that no perfectly smooth surface, be it as hard as it may, should be used for this operation. I have found a hundred times that I could not finish up the regrinding of fine middlings with smooth and polished roller surfaces, but I got very good results by using for this purpose cast iron rolls of homogeneous and porous structure, and better still by using porcelain rolls. For this simple reduction of large middlings (semolina) into smaller size any homogeneous and hard material will do well. With the use of the roller system the necessity arose for a systematic and logical arrangement of all the various machinery used throughout the milling process. The use of rollers for the breaking of wheat implies a gradual reduction which will be the more lucrative in its results the oftener the breaks are repeated, and, in consequence, the separation will be multiplied, and the number of sifting and purifying machines will increase, although such may be of less capacity, and this fact involves a rational and a systematic arrangement for the whole of the machines.

This important point has been considerably neglected in our mills up to this time, and far too little care was given to the proper arrangement of the single machines. Generally the plans for a new mill are made by an architect, and erected without the arrangement inside of the mill and its machinery having been fixed, and the American millers are a long way before us in this respect; they have well conceived that to be successful in the great international competition, the first thing to do is to be able to produce and transport at cheap rates, and, in consequence, their mills and granaries are erected with great care and at a cost which in our country would be looked upon as extravagant; however, my opinion is that this way is, after all, the best paying. You find in their new mills high, lofty floors, and a good number of them. The new Washburn A, for instance, has eight stories, and all of them have a height of more than 10 feet—some, indeed, have 16 feet. This arrangement enables the working of the mill in a self-acting manner, and the connection between the first and the subsequent operations are carried out more by gravity than by elevators and conveyors.

In this respect we have a great deal to do and to learn, and it would be far better to look more after the rational and self-acting arrangement of the mill than to make the first point a large capacity, and in consequence to curtail the practical management, a mistake which is often made with us when selecting and fixing the numbers, sizes and construction of the auxiliary machinery—as, for instance, the grinding, sifting and purifying machines. More especially now, when the tendency is gravitating towards high and middlings milling, observation of the above statement cannot be too carefully made. With milling on the high grinding system there should be no sparing of purifiers and dressing machines.

On roller mills I could say a great deal more, but time progresses and it becomes late,

and so I shall now turn to other matters of importance. The great progress which in our days has taken place from causes already mentioned, are proved in a prominent way by the enormous importations lately made from America to Europe. The large quantities of grain coming from the West effects our market severely even in Germany, and, further still, the successful competition of Americans with their fine flours of high baking quality seriously endanger our agricultural and milling industry. This movement will deeply effect the welfare of our farmers and millers if they do not exert their utmost efforts, and if our Government does not help by freeing our hampered agricultural, industrial and traffic interests and institutions.

In spite of our old civilization and high development of social life, we have not succeeded till now in availing ourselves, in a principal way, of the many water routes which nature has given us in abundance, whereas the comparatively young states of America have already extended over their territory a system of canals in the most practical and praiseworthy manner. The Americans understand too well the importance of being able, by cheap freight and easy means of transportation to the seaports, to extend their immense resources, and the result is already felt by us.

In consequence of this state of things, that are yearly increasing means and improvements in the way of transportation, storing and moving the large quantities of grain to the East, and we find the numbers of large elevators increasing from year to year with the most ingenious arrangements for the mechanical loading, unloading, ventilating, weighing, mixing and transporting of thousands and millions of hectolitres, and the whole arranged by only a few hands, thus enabling the reduction of the transporting and storing rates to quite an astonishing minimum. Only by this constant and energetic movement it is possible for that country to successfully compete with us in our own markets.

This elevator system ought to meet a good deal more attention in our country, although in latter years already some institutions of that kind have found adoption even with us. In America and in Great Britain this system of elevators is being adapted most successfully in smaller proportions by millers, and even by the smallest mill this system of storage will be found profitable. It is hard to understand how, for instance, the system of storage and conveyance of grain to the mills has been and is still so primitive, and I would say neglected, as it is found in Budapest, the metropolis of milling, and where the wheat is even now still brought to the mills with horses and cars in bags which laborers carry on their shoulder into the cellars of the largest mills, where the grain is handled only by hand labor, the shoveling, mixing and transportation to the wheat cleaning machinery being all performed by laborers, of whom quite a large number are wanted for the enormous quantities this big establishment manufactures. A slow and primitive proceeding like this is looked upon with astonishment by all American and British millers visiting Pesth, and, indeed, it is quite incomprehensible how this old style of treating grain can keep its hold in those places.

Along with this improved mode of storage we find also the cleaning of wheat constantly improving, and also in this respect we find the Americans at the head of the movement; having adopted from the first the system of aspiration or suction throughout all the grain cleaning operations, this effects a complete separation of dust and all light particles by the action of the machine as soon as removed from the kernel, a most important thing which in our present cleaning machinery is mostly neglected. There is no doubt in my mind that the Americans were the promoters of the now generally adopted system of cleaning, that is, to clean the kernel as much as possible from all foreign substances, to scour it free from dust, and to end the wheat by separating the germs and beard. All these operations take the greatest care, so as not to injure the husks and outer part of the grain kernels.

The machines for shelling and separating the husk from the kernel, which for some time, and even yet, had a good many advocates, are no longer used to such an extent as before, and the impossibility of arriving at a perfect solution of this problem is evident by a careful investigation of the structure and nature of the wheat kernel itself. The damping of wheat is getting out of use, and wheat heating is now more practised, it being claimed that to heat soft and damp wheat will increase the strength and improve the quality of the flour. Great improvements have been made

by the introduction of the cockle separators (trieurs), which have been successfully adopted in nearly all our mills. The machines with percussive action in combination with a simple and double suction, and the wheat brushes, although in combination with a strong ventilation, have secured in the last few years considerable attention by the most prominent millers, and will very likely get soon into general use. The old brushes failed to succeed from the want of the now ingeniously adapted ventilation and aspiration in such a way that the brush is found perfectly free of dust and smut even after two or three weeks and more of constant operation.

The dressing of flour and other milling products has necessarily undergone various changes on account of the different methods lately introduced into the milling art. The want of dressing silk surface was one of the most prominent wants in our mills, and by employing a larger dressing surface many mills have doubled their capacity and got a better percentage of flour. In Great Britain, as well as with us, the difficulty is the same in this direction, the newly erected mills are comparatively few in number and the old ones want sufficient space so that in using the old hexagon dressing reels no very great difficulties were encountered wherever the intention existed to increase the dressing surface. In the last few years, however, a first-class equivalent for the old hexagon reels was brought before the milling public in the shape of the centrifugal dressing reels, and this machine is unquestionably a most important one for all the smaller mills, and in all cases where space is wanting this machine will be effectually employed.

The treatment of bran has also received, in the last few years, great care and attention, and the new methods for cleaning bran with rollers, bran dusters with brushes, and revolving cylinders are getting into use. I am sorry the time is getting late. It has been impossible for me to treat the whole subject in the extensive manner it deserves and I wished. (Applause.)

Dr. Sellnick, of Leipzig, next reported on a bill now before the Government, for the protection of workmen against accidents in factories. Although he was not opposed to all the clauses in it, yet he was convinced the bill could not become law. He had noticed that in proportion as safety appliances were adopted, the greater became the carelessness of the workmen who had to look after the machinery. Their efforts were entirely directed to make the working of their mills automatic as far as possible. The report on fire insurance, furnished by Director Tschmarke, of the Magdeburg Fire Insurance Co., stated that the first twelve years' contract had expired on the 1st July of the present year. The results of the short three-year periods had been unfavourable, and they were consequently unable to grant any bonus on these policies. After careful consideration as to how these unfavourable circumstances were to be overcome, the committee of the company had decided to renew the contract for a second period of twelve years. It was chiefly through the large mills, whether driven by water or steam, that they had such a bad result to show this year, for when a fire did occur in them the loss was always very heavy. The company had, therefore, decided to slightly increase the rate, but still keeping it within moderate bounds. One great evil with which they had to contend was that only a proportionately small number of mills were insured with them, and, further, by the increase in the rate of premium, several of the large mills had withdrawn. This latter event was, however, consoling, in so far as the risk of the company was materially diminished. During the past three years they had received in premiums the sum of £84,082; against this they had paid for losses £82,206. Since the establishment of the company, in 1868, they had taken 10,994 policies, for the total sum of £47,531,260. On this amount they received £211,567 in premiums, and paid in losses, for 345 fires, £218,415, or 103 per cent. of the premiums. If to this were added 25 per cent. for expenses of management, and their reserve fund of £2,250, the account would stand thus:—Total receipts, £211,567; losses and expenses, £273,200. Since the 1st of July they had suffered losses amounting to £4,570, against £56,000 to be paid by other companies for mill fires. In referring to the causes of fires in flour mills, the speaker said that every step forward made in technical progress was a step backwards for the prosperity of the flour mill insurance companies; the elevators, dressing and cleaning machinery were frequently arranged in positions entirely un-

suitable to them, and machines requiring the most careful supervision stood on floors where they were not properly attended to; these among other causes would account for the increasing number of mill fires. In addition to the want of space in many mills, the keen competition forced them to work up to their fullest capacity, and thus where the pressure was kept up, the risk of fire was increased enormously. The use of naked lights in floors where there was a large amount of dust in suspension was also to be deprecated, and he could not understand how they could be used close to the dressing cylinders, which caused many fires every year. The appliances for extinguishing fire possessed by the mills were extremely defective, and he recommended them all to have extinguishers on the premises, and in this way they could often prevent the fire from spreading. The chief danger was that everyone under-estimated the risk of fire, and lived in the hope that a fire would not break out in their place. In concluding, the speaker expressed his gratification at the satisfactory manner in which the company and Association had worked together, and trusted that members would avail themselves still more of the advantages offered by the company. This closed the proceedings for Monday.

On Tuesday, the 7th September, the meeting was opened at 9.15 a.m., when Mr. Waltersdorf presented the statement of accounts for the past year. The balance standing to their credit was at present £350, against £180 in the preceding year. In this account, however, they had not included the deficit left by the Berlin Exhibition, amounting in all to about £500. This will be more than covered by the anticipated surplus from next years' account. One of the causes of there being a deficit at all from the exhibition, was explained by the fact that the Berlin municipal authorities compelled them to erect portions of the building in a very substantial manner, quite unnecessary for the short time for which it was required. The receipts for subscriptions, it was mentioned, had been about £150 in excess of the previous year's, over 500 new members having joined. Stettin was eventually selected after a short discussion for next year's general meeting. The remainder of the morning's sitting was devoted to the question of grain duties and the benefit of Trade Protection societies. In the afternoon sitting Mr. Joseph J. van den Wyngaert delivered his address on his visit to America.

General Meeting of the Association of Austrian Millers.

The annual meeting of this society was held in Vienna on the 7th September, Mr. Ignaz Seidl, of Trautmannsdorf, occupying the chair.

After the transaction of some formal business, the President called on Mr. Sturm to read the yearly report of the Association, which showed that the two chief subjects that had engaged their attention during the past year were the questions of duties and of standard samples. The petition presented to the Government praying that a duty of one shilling per cwt. should be levied on all German flour imported into Austria had as yet had no effect. The standard samples, as agreed upon at their last general meeting, had been settled and introduced into the trade, many home and foreign mills having procured duplicates of them. The negotiations with the Vienna Fruit Exchange for the renewal of the standards had not succeeded, as the exchange wished to undertake that duty entirely, a course which had been considered as likely to prove prejudicial to the interests of the Association. The adoption of a universal standard would be of special importance for the export trade. Many large mills in Vienna and the provinces had adopted their standard, and the millers and flour factors had expressed themselves quite satisfied with it. Now, when the small and medium sized mills were pressed so hard with the competition of the large limited companies, it was more than ever necessary for them to have union, and, as a matter of fact, it was the medium sized mills chiefly that were represented in the Association. If their colleagues would all except the Vienna standard samples, a large flour trade could be done, and the small mills would be able to work quite as advantageously as the large ones. In their trade, as in many others, the large mills were threatening the smaller ones with extinction, but if the latter were united, and kept pace with the times, then they would be able to hold their ground easily. In Bohemia, Galicia, and Moravia the millers in many districts were desirous of founding branch associations, but their efforts had not as yet been crowned with success, as it was difficult

to get there the minimum of twenty members required for each branch. The council had borne in mind the question of a millers' school, and awaited a favourable opportunity for taking action in the matter. The council and the committee had held twenty-eight sittings during the past year. The statement of accounts was then read and unanimously adopted, when the president called upon Mr. Sturm to read the terms of a proposal made by the committee for a partial increase in the yearly subscription of members. The subscription of eight shillings per annum had hitherto barely sufficed to cover all expenses, and many subjects of interest to the Association had to be left untouched for this reason. It was therefore proposed that members should contribute in proportion to the size of their mills, and the council had drawn up the following resolutions, which were submitted to the meeting for confirmation:—

1. The entrance fee to the Association shall remain as previously at 10 shillings.

2. The yearly subscription for members other than millers, or millers having only three pairs of millstones or rollers, shall remain at 8s.

3. Members having more than three pairs of millstones or rollers shall pay a supplementary fee of 1s. per set, the maximum amount of subscription being limited to 40s.

The adoption of this alteration would, with the present number of members, increase their balance some £40, the greater part being contributed by the large mills. In levying the rate a roller mill would pay the same rate as a millstone. The motion was then put and carried. A report on the excessive rates of carriage charged by the railway companies was also read, and it was decided to petition the Government to rectify the existing abuses.

Mr. Pappenheim then read the resolution adopted by the council with respect to the advisability of establishing an international exhibition of milling and baking machinery, as well as flour and grain products, to be held in Vienna in 1881, and at which all the machinery would be shown in motion. It could not be denied, he said, that the periodical exhibitions held by the Vienna Fruit Exchange, in conjunction with the Industrial Union, created great interest in the milling world, but still their advantage to the miller was often problematical, because none, or at all events only few, of the machines were in motion, and buyers were therefore compelled to rely on the word of the machinery agent or dealer. Sometimes it happened that a miller was in this way persuaded to purchase a costly machine which he afterward finds out is not suited for his purpose. In consequence there was a great amount of distrust in the minds of millers against all new machines, on the one hand the spirit of invention in the manufacturers was crippled, while all progress in milling was stopped. But if an exhibition were taken in hand that would show the machines in full operation, the visitor would have a chance of judging of their merits, uninfluenced by the statements of the vendors. This would all tend to the benefit of the milling industry in Austria, which had now more than ever to fight for existence against foreign competition. He thought that some of them might think what good was the whole affair, let them be glad that they had nothing new to see, and could keep their money in their pockets, as they had been taken in quite often enough. But that would be a very foolish policy. They must remember that they were not the only people in the world, and it would be to their own disadvantage to shut their eyes to progress, as was unfortunately the case often enough. He therefore begged them to confirm the resolution of the council, to whom it would be left free to make the necessary arrangements with the Fruit Exchange and Industrial Union. The exhibition would only take place in case it should be carried out fully. There would be little expense entailed in exhibiting the various products of grain, and in the Paris Exhibition they had full proof of the value of such exhibits. For the present they could make no definite proposal, as the various manufacturers had first to be consulted, and the feasibility of the whole matter depended on their being disposed to make the sacrifices required. They would also like to work in union with the manufacturers, who would at any rate be represented on the committee.

Mr. Polsterer acknowledged that an exhibition in the sense of the one proposed would be of great value to the millers and to the competent machine builders, and he quite agreed with the proposed principle. It appeared, however, to him that it would be too soon to hold an exhibition again in Vienna in 1881. They had had a trade exhibition this year in Vienna, but last year there had been

one in Berlin and all the other great countries were holding exhibitions. The manufacturers were at present somewhat discouraged from assisting them, and even among themselves it would be difficult to find anybody willing to take all the trouble for next year. He therefore begged to make the following proposition: "That the future council be instructed to bear in mind the establishment of an International Exhibition of Milling Machinery in Vienna in 1882, and to take the necessary steps to this end."

Mr. Pappenheim said that the lower Austrian trade exhibition did not offer what the milling exhibition was to do, for in the former only home manufacturers residing in Lower Austria were admitted, while those from all other parts of the country or from abroad were excluded.

Most of the home and foreign manufacturers had shown their approval of the seed market by sending their goods there, and many inquiries had been received whether such an exhibition would not be held again. If the Millers' Association would not take the matter in hand at once, then the Industrial Union would probably arrange for another seed market to be held in 1881, on the same lines as the previous one, where they would see nothing but closed boxes. They did not want to underestimate the co-operation of the Industrial Union, but he thought it would be more advantageous for the next seed market exhibition to be arranged by the Millers' Association along with the Industrial Union, than by the Industrial Union without the Millers' Association. It would be necessary to take immediate action so as to secure the Rotunda. The Minister of Commerce was very willing to meet them in the matter, and consequently they must take immediate action.

Mr. Emil Pfaff was of the same opinion as Mr. Polsterer, that the exhibition should be held in 1882, for just now the manufacturers were tired of exhibitions. As far as his knowledge went, the Industrial Union did not intend to hold an exhibition in 1881, for this year's had not given the result expected. Comparing the exhibitions of Berlin and Dusseldorf with their own, he found that the daily number of visitors to the former were at least 12,000, while in Vienna, even on Sunday, not half that number had visited the trade exhibition. The cause of this was that Berlin, and especially Dusseldorf, was in the center of a group of manufacturing towns, which was not the case in Vienna. He begged them to take into consideration who should make good the deficit, in case they had one with their milling exhibition.

Mr. G. Pappenheim did not concur in the views of Mr. Pfaff. Many manufacturers regretted this year that they were excluded on account of their nationality, and the numerous inquiries received by the council proved that such an exhibition is wanted. It should be the duty of the Association to see the matter carried through. While it was not too strong enough to do so, the Industrial Union had supported them, but now they were bound to carry it through in a proper manner. With regard to the deficit he did not see why there should be one if the German Millers' Association had not had one with their exhibition in the previous year. Whatever Berlin could do, Vienna could also.

Mr. Pfaff said that the Berlin Exposition was open for fourteen days, while the Vienna seed market was only open for eight. He wished to know who would put up motive power for only a few days, and, besides, the machinery department was put poorly represented.

Mr. Pappenheim stated that the absence of many of the large manufacturers from this year's exhibition was due to purely personal causes, well known to most of them. If the gentlemen present thought that the time was too short to have the exhibition complete in every respect, he would beg to support the proposal of Mr. Polsterer for its postponement till 1882. He therefore moved the following amendment:

That the preliminary steps are now to be taken, but should a Seed Market Exhibition for 1881 be intended by other parties, then the exhibition of milling machinery shall take place also in 1881.

The amendment was then put to the meeting in the usual manner, and accepted by everyone, with the exception of Mr. Pfaff.

After the election of the new council the proceedings came to a close, the President, Mr. Ignaz Seidl, requesting the members to do their utmost to make the Association known.

AN Austrian baker in Gratz recently failed, and when brought before the court for examination stated that the cause of his failure was

through his not being a drinker. The majority of his customers were publicans, who each expected him in return for their custom, to consume a large quantity of beer. As he could not oblige them all, he soon lost their custom and consequently failed.

Pennsylvania Millers' Convention.

The third annual meeting of the Pennsylvania Millers' State Association was held in the large parlors on the second floor of the Wyoming Valley Hotel at Wilkes-Barre. Many of the best known millers in the State were present. There were also in attendance dealers in mill machinery, insurance agents, dealers in patents for mill purposes, grain merchants, &c. The press was represented by W. A. Spore, of the *Milling World*, Buffalo, N. Y. John Wallower, *Independent*, Harrisburg. The *Record of the Times*, and *Scranton Republican*. His Honor, Mayor Broderick, was present, by invitation.

At three o'clock, Hon. Chas. A. Miner, President of the Association, called the meeting to order and introduced Thomas Broderick, Mayor of the city, who addressed the convention as follows:

Gentlemen of the Pennsylvania Millers' Association—On behalf and in the name of the city of Wilkes-Barre, I bid you a sincere and hearty welcome. The meeting of an association of men of your individual character and standing, and representing as you do one of the great industries and sources of wealth of this great nation, is an event of importance to this city. Accustomed as we of this Valley are to having our attention concentrated upon the one element of wealth that distinguishes this region as the finest body of anthracite coal in the world, it is well for us to have brought to our notice the interests and development of another and even greater national resource.

The old boast that cotton was king has long since died away, but it may well be said that, if grain is not king, it is the best representation of the true sovereignty of the whole republic—North, South, East and West.

There is nothing sectional about grain, and so long as we can feed ourselves and half the world besides, we may have good assurance of the prosperity of our whole country.

The development of the business of which you are the representatives of this Commonwealth, is one of deep interest to all of us, and the organization and energies of an association such as yours cannot but tend to increase and render harmonious such development in a large degree. Gentlemen of the Association, the hospitalities of the city of Wilkes-Barre and of her citizens are yours."

After the Mayor closed his address of welcome, Mr. Miner, the President of the Association, opened the session with a few remarks. Among other things he said he was glad to meet so many of the more influential members of the Association from all parts of the State. He was glad to see substantial millers from Beaver in the West to Northampton in the East, Bradford in the North and Montgomery in the South, and although we have had larger meetings as to members, we have probably more barrels of flour and bushels of wheat represented here than ever before. He urged upon them the necessity of individual effort to make the Association a success, and hoped the meeting would be a pleasant and a profitable one. He added that a member then present, had made arrangements for escorting the delegates to the mines and other points of interest in and near the city, including points from which views could be obtained of the valley. Mr. Miner stated that he would do all in his power to give the delegates pleasure. He then called upon Col. E. K. Hancock, of Philadelphia, who responded by remarking that he had been given a more responsible duty than he deserved. He would assist the President in making the visit of the Association to this city a pleasant one. The Lehigh Valley Railroad have generously and courteously offered the Association a special train to take the members in any direction as far as the road extended, or they wished to go. He was glad to meet so many members and to become better acquainted with them and hoped all would remain here to-morrow.

The train on the L. V. R. R. would leave the city at nine o'clock in the morning for Fair View, and return in time for dinner at the hotel. A visit would then be made to the Prospect colliery of the Lehigh Valley Coal Co., and to other points of interest. He hoped that each and all would take advantage of the opportunity, and that those having ladies or friends with them, would ask them to join the party. Most of the members ac-

cepted the invitation. The regular business of the meeting was then taken up.

The Secretary distributed the constitution and by-laws in pamphlet form to the members.

The minutes of the last semi-annual meeting at Harrisburg were read and adopted. The Secretary then submitted the following report:

"Mr. President and Gentlemen: In presenting my report for the last nine months I regret that I cannot give you a more flattering account of the growth and business of the Association.

We now number 121 members, an addition of fifteen since my last report. This membership should be largely increased, for all will, I think, admit that our meetings have been profitable, and would become far more so if a general interest were manifested. It should not be the work of a few, as its interests extend to all.

The special unfinished business considered at our last meeting having been generally referred to the different committees, will by them, doubtless, be brought before you.

The prominent public feature of special interest to the craft, during this interval, has been the Millers' International Exposition, at Cincinnati. Many of you, I know, attended that novel exhibition, and observed what can be accomplished in milling, by having the advanced ideas of the day practically demonstrated by properly modeled machinery. This feature of the exhibition was the absorbing one to the American; while to our foreign visitors that department of the exhibit showing the unbounded resources of our land, enabling us to supply the world with food, must have been equally interesting. Thus that enterprise in so clearly demonstrating the unparalleled productions of our broad acres, and the inventive genius of our people, cannot fail to prove of great and lasting good to our country.

To-day the term expires for which you have elected me your secretary.

I have endeavored to serve you as well as my engagements and appointments permitted, and regret that I have not accomplished more for your benefit.

I desire to take this opportunity of thanking you for the marked courtesy and kindness you have always shown me during the two years that I have occupied this position. I know that my successor will have the same kind treatment at your hands, and hope that he will do far more and better for you. Yours, &c., A. Z. SCHOCH."

The report of Mr. Schoch, as treasurer of the Association, was also submitted. Messrs. L. W. Pyle, F. U. Gantz and Benj. Wissler were appointed a committee to audit the account. This they did and found it correct.

J. A. Gerhart, Easton, and E. B. Barnes were enrolled as members of the Association.

The Committee on Insurance had no statement to make at present, but reported progress. M. Horton, a representative of the Millers' National Insurance Co., was called upon and addressed the convention at length upon the subject of insurance. He spoke of the necessity of insuring by millers, and of the danger of fires in mills. He explained these dangers, and after showing how fires often arose from causes little anticipated, showed how they were caused by spontaneous combustion, the result of accumulation of oil, waste, dirt, etc. He gave a full and clear description of many cases of peculiar interest to millers.

Mr. Wenger of the Committee on Patents made a report, in the absence of the chairman, Mr. Creswell. The report was adopted.

E. B. Isett, chairman of the Committee on Transportation had written a letter to the Secretary, in which he gave a full report of what had been done relative to freights on the Pennsylvania R. R. This subject gave rise to a general debate, many members expressing opinions. In order to continue their work, the committee was continued for another year. The following are the members of the committee:

E. B. Isett, Spruce Creek, Huntington; Samuel McIlvain, Philadelphia, T. L. Rogers, Pittsburgh; Allegheny; L. W. Pyle, Bryn Mawr, Montgomery, F. U. Gantz, Marletta, Lancaster.

Thomas Wright, chairman of the Committee on the Mill Machinery and Processes, was present and spoke at length on motive powers, giving his opinion of the various kinds of machinery now in use, burrs, etc., and the system of dressing burrs. His explanations of the advantages and saving to the miller, by the use of certain machinery, were exceedingly interesting.

The Committee on Grain for Milling reported the different kinds of wheat that make the best flours, and those most profitable to makers and consumers, and also mentioned

certain kinds of wheats which are decidedly inferior. On this subject Mr. Isaac M. Thomas, of this city, and others, spoke briefly. A letter from E. K. Bollinger, on the same subject, was also read.

Messrs. Small, Isenberg, Walters, Graber and Heebner were appointed as a committee to make nominations for officers for the ensuing year, who would be elected at the evening session.

The convention then adjourned until half-past seven o'clock in the evening.

The meeting was called to order at half-past seven o'clock. The President announced that the subject of wheat for mills would be resumed. There were many expressions of opinion, but the long berry wheats appeared to be the favorites. White and red wheats had their advocates. A specimen of the Hungarian or Thies wheat was laid on the table by Mr. Wright, of Kingston. It did not seem to be favorable received. Mr. Wright said he had sent for eight bushels for the farmers in his country to try, but it came too late. After a full discussion, the Chairman of the Committee on Grain for Milling, recommended the following, which was adopted as the sense of the convention:

The Committee on Grading and Inspection report to the effect that in grading and inspecting grain for milling, they think the judgment of the miller of the first importance, and that some experience is necessary in buying wheat. It is generally customary for a miller to fix a price for the highest grade of wheat and then pay a less price for a poorer quality. The Committee say that great care should be taken not to admit more to his No. 1 grade than just what belongs there. The buyer is always expected to be generous to the seller, but he should be just as generous to admit only such quality into the first grade as is entitled to be so rated. The grain tester now in use shows the correct weight per bushel and the Committee regard this scale as a valuable help in determining the quality and value of wheat, and they recommend its use where wheat is largely bought. The sense of the above was adopted by the Convention.

Members of the committee, who visited the Cincinnati National Convention, gave their opinions on machinery, at length, showing what machines for cleaning bran and other mill stuff were complete, and which were the best. The corrugated rolls on middlings seemed to give satisfactory work, and were a favorite with many. Various other machines used about mills were fully explained, and those singled out which were the best in their opinion.

Mr. Small, as Chairman of the Committee, after returning thanks to the officers of the Association, stated that the choice of the Committee for President was Hon. Charles A. Miner, and for Secretary, A. Z. Schoch.

Mr. Miner urged business engagements as a reason for not accepting a re-election and requested earnestly that some one else be chosen.

The Committee refused to accept Mr. Miner's declination even if he positively refused. Mr. Schoch firmly declined re-election and said that his business relations rendered it impossible for him to serve. The Committee begged him to reconsider but he said it was impossible.

Mr. Miner was then re-elected President for the ensuing year by an unanimous vote, in spite of his protest.

The following is a list of the officers for the ensuing year:

President, Charles A. Miner, Wilkes-Barre, Luzerne county; First Vice President, Jacob Walter, Easton; Second Vice President, Wm. P. Duncan, Phillipsburg, Centre county; Secretary and Treasurer, B. F. Isenberg, Huntingdon; Executive Committee, W. Latimer Small, York, York county; A. Z. Schoch, Selinsgrove, Snyder county; S. L. Levan, Lancaster, Lancaster county; Nathan Sellers, Philadelphia; John Hofer, Harrisburg, Dauphin county.

Economical Housekeeping.

A FRENCH MADAME TELLS HOW SHE FEEDS A FAMILY OF NINE WITH \$15 A WEEK.

"I cannot give you exactly the English for it. I suppose the word overlap would come near my meaning," said Madame. "I do not believe that a rechauffe is always as good a dish as when the plat is freshly cooked, but still there are some kinds of ragouts which improve much by the re-cooking. I even tell you when it happens that things are better when rewarmed—say my dish is thin and not concentrated enough. That sometimes happens to the best of cooks. Then if you make a rechauffe and do it well you improve things.

Now you translate rechauffe; what it means. Not twice cooked, but something warmed up again. Great difference, you perceive, between subjecting food to a violent heat and a gentle warming. Do I make use of such? Of course I do. I cannot afford to waste anything. But that is not the what I call it? Yes, the overlap. There are 10,000 things that come in that scheme—category—what you will. Now, I will explain. Yesterday some fishing friends sent us a large bluefish; too much to eat in one day, but it has been boiled. More than half remain. What shall I do? Why, make a fish pate for breakfast. Oh! it was easy enough. The fish, it was taken off carefully, not broken. I made a crust, put in fish, with an oyster or two, a very little anchovy sauce, some pursley, little mace, small piece butter, and it comes to table hot and brown, and we think it very nice. I do not call that a twice-warmed dish, for it was new. Now to-day we shall have for dinner, with some other things, small fillet of beef and a smoked tongue. Very certainly, though we shall have two or three people to dine, much of the fillet and some little of the smoked tongue will be left over. I already have in my mind some idea what shall be done with the remains to-morrow, for a good housekeeper, and that means an economical one, always looks ahead. I shall cut up what is left over of the meat, and mince the tongue fine, and the cook will fry a chopped onion, and add a little pepper and salt, with a little stock, and then we'll make some paste as for a pie, and we will have rissoles, which will be very good. You make rissoles by cutting the piece of dough in small squares, putting a small tablespoonful of your farcie in each. You turn over the ends, like a pincushion, and if you want, you paint each one with a leet'l egg, and you bake. Would you have these rissoles so that you shall fall in love with them? Have some friend to send you some truffle, and chop in piece not bigger than my thumb. You laugh at my enthusiasm? You know what happen to me? This very summer I spend some weeks in a hotel with my family, and things cooked very bad, and waste—waste bad enough to ruin the proprietor. I see the cook throw away every six, eight feet of sheep from leg of mutton. One day I ask the landlord "why he have them throw away," and he laugh and say, "they were not good." I tell him, "Wait, you see. Will you tell the cook to let me show him how to cook them, and, if good, will you eat them?" and he agree, and I get them. Of course, you know that I make pied de mouton a la poulette out of them. It is very simple. You clean the foot and parboil until tender; you keep the stock and boil it down; you make white sauce with much parsley, and give a dash of lemon to it last. I happen to find an intelligent mamiton in that hotel kitchen who do what I say, while the head cook look on sulky. The landlord eat, and was satisfied that I know about what I talk. When I first came to New York, and did not know how markets are manage, I say to my bonne, "You go to market and buy me half dozen sheep's feet," and she say, "No, I am ashamed to do that; the butcher man he will take me for beggar."

"Would you mind giving me the cost of your food?"

"By no means," mademoiselle. We are seven in family; with two servants, that makes nine; with one guest almost every day. I cannot afford for grocer, market man, bread, milk, more than \$15 a week, and should my bills ever be more I retrench. I do not include wine, but tea and coffee—coffee twice a day—is always served. Ah! my butter is not used so extravagant as in American families. Why, when you use meat for breakfast, do you want butter? Perhaps nine-tenths of the butter I use will go to the preparation of vegetables. I think two pounds of butter is all we use. I think we eat much mere bread than in an American family. Where my economy comes, I think, is in overlooking what my cook does. Now you make calculations how many times we have portions of food during the week; breakfast, luncheon, dinner—that makes 189 times converts that are laid. Divide that by \$15 in a week and see how little it come to, and yet we stint, for, if I remember, I told you once that I believed that if a man, or woman, or child work, they must have good food, enough of it, and, surtout, that it must be well cooked. It is not so difficult, after all, when you make up your mind that it must be done. If I do not do it, I should like to know how I dress my children myself. You think it very small? Why, I know a French menage in New York—family one more than mine—that live quite well on \$12 a week, and I could do it if it were necessary."—*New York Times*.

"The Old Stone Mill."

NEWPORT, R. I., Oct. 18.—Mr. S. Russell Forbes, of Rome, Italy, a well-known archaeologist who has spent many years watching the excavations in that city, and who has devoted his life to the study of historical antiquities, has been in town for several days for the purpose of studying into the mysteries of the old stone mill. He reaches his conclusions through a process of reasoning uninfluenced by current opinions, or previously advanced theories, and his familiarity with the old Norman architecture and his acquaintance with the ruins of the old world will lend additional value to his theory in regard to the solution of the problem. He says that the mill is undoubtedly Norman, and in the style of its columns it corresponds with many Norman edifices in France, England and Italy. He disposes of the popular idea that it is a copy of the one at Leamington, Eng., or that it resembles the baptistries of Europe, to which it has been compared by a recent writer in one of the leading monthlies of New York.

Mr. Forbes says: "This tower is mentioned twice in some papers of the English governor, Benedict Arnold, who speaks of it as his 'stone mill,' but he does not say that he built it. The strongest argument in favor of that view is that it is said that the governor's house, pulled down some years ago, was built of the same kind of masonry, and that a house still existing in this city shows the same construction. But, on the other hand, there is nothing to show that the idea for these edifices was not taken from the old tower. I find that the house referred to—the oldest stone house in the colony—is not of the same construction as the tower. The mortar is different in its composition. It has hair in it, and brick is used for the windows among the stone. If the governor's house was like this it certainly was not of the same construction as the old tower. Records exist of the building of all other edifices, but there is no record of the erection of the tower. The governor would certainly have boasted of such a tower had he built it. Easton's mill, near Newport, was of wood, and is recorded as being the first one erected. Great were the rejoicings at its completion, and as a reward of the owner's public spirit the town presented him with a mile of the beach."

"The old tower was not built for a mill, and has nothing in common with the Leamington square pillared mill, erected by Inigo Jones, near Chester, Eng., to illustrate the architect's idea of what a windmill should be. Tradition says that this was used as a mill. A party landing on the coast and intending to stay would naturally erect something to protect themselves from wild men and beasts. They would select that spot which commanded an extensive horizon and was easy of defense. Consequently, they would choose the highest ground convenient to their landing place. Their camp was probably pitched at the top of the hill, and in the centre they erected their *are* (citadel, keep or watch-tower), and castle. As this was to them the most important place, they erected it of stone, after the pattern of their own Norman towers at home. Lying along the shore was material ready to their hands—stones of various kinds and shapes, cast up or washed from the rocks by the sea, such as can be seen at the present day on the adjacent shore. They naturally burned the shells strewn along the shore for their lime, and, mixing sand, made the mortar with which the stones were held together. Selecting the largest stones of the material most easily broken, they formed with these the bases of their Norman columns, and where they were not level they filled them in with smaller stones. Their rough, rubble material gave a rude appearance to their stronghold, and presented many points by which a savage might, like the Gauls of old, climb into the capitol. To obviate this they coated the whole of the edifice with mortar, which, from the materials composing it, formed the best kind of stucco. The fireplace and the window opposite are original (the other window is more modern), and are built with arches of a construction which it would be impossible to insert if not built so originally. They correspond with the arches which spring from the columns and support the tower. The two flues are peculiarly a Norman feature. Some of the smaller holes were for the joists of the flooring to the second floor, and some, now filled in with brick on the inside, were for loopholes. Other holes were for the support of the stairs. There are decided traces of where the stairs to the second floor were placed. A little way from either side of the fireplace and above it a ledge or shelf is noticeable, running all around the interior.

"This supported the roof of the second

floor, and formed a platform for a lookout from the top of the tower. As each arch sprang from the right and left of its column a space was consequently left in the wall for the massive joists of the first floor, which was reached by wooden steps, pulled up in time of danger or at night. This massive flooring is another proof of the antiquity of the tower, and it must have lasted a considerable number of years before it rotted out. A light in the original window would serve to guide any boat or bark they might have, or could be a signal to any comrades who might pass along the coast at night. The character of the construction is Norman, and when or by whom it was built, the purpose was to erect a watch tower and place of defense. It is un-English and decidedly Norman. As the Normans are known to have been acquainted with the coast, there seems to be no improbability in their having erected this tower. Of their camp ground nothing remains, because it was never more than a temporary affair, like all camps. The fact that the columns are true to the points of the compass indicates that seafaring men were the builders of the tower. For, as steered their bark by the polar star, so would they set their tower by it. If these builders were shipwrecked mariners, they would have no means of communication with other settlements of their countrymen, and we may presume there were no women among the crew, whose numbers would gradually diminish until, in the course of time, they died out, leaving no trace of their settlement except this unique and lonely tower."

The *Newport News*, this evening, editorially referring to Mr. Forbes' examination, says: "It will awaken the inquiry anew and lead many to reconsider the opinions previously entertained. That some of the old discussions are scarcely worthy of the name is evident from the fact that one of the most popular and widely-read articles on the subject that has ever been printed was written by a gentleman who spent but three hours in the vicinity, and who never passed inside the iron fence with which it is surrounded. Without even entering the building he pronounced it a baptistry and published an entertaining article, but wholly wanting as a substantial basis. Some other writers have been Newport men who have grown up in sight of the tower, and, having always heard it spoken of as the 'old mill,' can scarcely come to the believe that it could have been anything else."

A Wasp in an Old Man's Slipper.

There are times in the life of a small boy when he feels very sad from the use of a slipper or switch upon him. If anything happens to the person who thus afflicted him, his joy is great, as will be seen from the following incident: A gentleman returned home from his daily toil and had pulled off his boots and was going to put on his slippers, when a howl of intense agony resounded through the hall. The affrighted family rushed to the door, and beheld their papa leaving the shadows with wild gestures and frantic gyrations. "Take it off!" he shouted and made a grab at his foot, but, missing it went on with his waltz. "Waiter!" he shrieked, and started up-stairs, three at a step, and, turning, came back in a single strike. "Oh, I'm stabbed!" and sank to the floor and held his right leg high above his head; then he rose to his feet with a bound, and screaming for a boot-jack, and held his foot out toward his terrified family. "Oh, bring the arnica," he yelled, and with one despairing effort he reached his slipper and got it off, and with a groan as deep as a well and as hollow as a drum, sank into a chair and clasped his foot in both hands. "Look out for the scorpion," he whispered hoarsely; "I'm a dead man."

The small boy was by this time out in the woodshed, rolling in the kindling in an ecstasy of glee, and pausing from time to time to explain to the son of a neighbor, who had dropped in to see if there was any innocent sport going on in which he could share. "Oh, Billy! Billy," he cried, "you wouldn't believe; sometime to day, somehow or other, a big blue wasp got into the old man's slipper, and when he came home and put them on—oh, Bill, you don't know what fun I've had."—*Dallas Herald*.

"WILLIAM, you have again come up unprepared!" "Yes, sir." "But from what cause?" "Laziness, sir." "Johnson, give William a good mark for uprightness." "Bates, you proceed." "I have not prepared, too, sir." "But why not?" "From laziness, sir." "Johnson gives Bates a bad mark for plagiarism."

OLEOMARGARINE is sold by the grocer who tells you it is just from the cow. And so it is, but the cow is dead.

NEWS.

EVERYBODY READS THIS.

ITEMS GATHERED FROM CORRESPONDENTS, TELEGRAMS AND EXCHANGES.

Cleveland, Neb., wants a grist mill.

Geo. Graham & Son have bought Preston's mill at Trenton, Mo.

The new mill of the Winona Mill Co. turns out 600 barrels of flour daily.

L. Pauly, of Alma, Kan., is building a new mill on the new process system.

T. J. Woodruff's grist mill at Grant, N. Y. burned Oct. 5. Loss \$40,000.

E. T. Martin, at Milner, Ga., has contracted for a three-run new process water mill.

J. J. Heacock, of Rochester, Iowa, is building a two-run steam mill at above place.

The mill of R. M. Simmons, of Adairsville, Ky., is undergoing extensive repairs.

The Schlitz Brewing Co. of Milwaukee, will built a \$40,000 malt house this winter.

Andrews, Ia., people are trying to get someone to locate there and built a grist mill.

Robert & Perkins new mill at Fargo, D. T. will have a capacity of 125 barrels per day.

Fred. Geiger has ordered one of Simpson & Gault's improved No. 4 Snow Flake purifiers.

Simpson & Gault have received orders from Australia for three No. 3 Snow Flake purifiers.

Simpson & Gault, have orders for a car load of Portable mills to fill orders in Portland, Oregon.

Scott & Co., of Greenfield, Ind., have ordered a Champion brush machine of Simpson & Gault.

It is reported that a larger amount of winter wheat than usual has been sown in Wisconsin this fall.

The new elevator at Duluth, Minn., has commenced business and is receiving wheat at a lively rate.

The propeller Quebec, in order to ride the lake storms, had to throw overboard 700 barrels of flour.

Barnard & Young, of Bloomington, Ind., are enlarging their mill and adding considerable machinery.

Jones, Ballard & Ballard have ordered two No. 3 Snow Flake purifiers for their mill at Louisville, Ky.

The damage by fire to the O'Fallon Mills in St. Louis, Oct. 8d, was \$30,000. This includes damage to stock.

Kyle Bros., of Beach City, O., have contracted with Simpson & Gault for a six-reel chest and other machinery.

About a million and a half barrels of flour have been shipped from Minneapolis from January 1st up to November 1880.

R. Monarch & Co., of Owensboro, Ky., are putting four of Simpson & Gault's corn mills in their distillery at that place.

M. Scheurider & Co., Jasper, Ind., are adding one of Simpson & Gault's 22-inch middlings mills and other machinery.

C. Martin, of Athens, O., is putting one of Simpson & Gault's Combined Smut and Brush machines in his mill at Shades, O.

The old mill belonging to C. N. Nichols, at Onalaska, Wis., after twenty-five years of profitable activity was recently burned.

The Chicago Pearl Barley Mill, owned by Charles Esemann & Co., was burned early in October. Loss, about \$8,000; insured.

Louis C. Richter, a miller of Lincoln, Ill., is in jail charged with an attempt to murder his divorced wife. He pleads not guilty.

W. H. Liggett & Co., of Columbia City, Ind., and David Scott, of same place, are enlarging their mills and adding new buhrs.

Fire destroyed the brick flouring mill of Lawson & Bell, Gallipolis, O., Monday, involving a loss of \$12,000; insurance \$8,500.

The boiler in the Enterprise flouring mills at Pomeroy, Ohio, exploded Oct. 3d, and severely scaled two lads. No employees were injured.

The building for the Queen Bee mills at Sioux Falls, D. T., is completed and the millwrights are placing the machinery as rapidly as possible.

Bread made from whole wheat soaked before being coarsely ground, is used in the French army. Sea water used in the kneading is said to add flavor.

The steam flouring mill at Cortland, Jackson Co., Ind., was burned October 13. It was owned by Geo. R. Brown. Loss, \$10,000; insurance, \$2,500.

H. A. Fox, Fountain City, Ind., is adding two of Simpson & Gault's Queen of the South under-roller mills, Champion separator, new conveyors, elevators, etc.

The Dan. Shaw Lumber Co., of Eau Claire, are changing their mill to a full roller mill using the Gray noiseless roller mills. Ewd. P. Allis & Co. have the contract.

The new brush attachment on the Snow Flake purifier, made by Simpson & Gault, is acknowledged to be the most practical device for cleaning cloths now in use.

Threshing in Great Britain reveals the important fact that the large bulk of wheat harvested in good condition has since been damaged in the stacks by rain.

J. C. Harris, of Montgomery, Ind., has given his order to Nordyke & Marmon Co., of Indianapolis, Ind., for a four-run new process mill, complete from top to bottom.

Simpson & Gault are refitting the mill of C. Morris, of Knoxville, Ky., and are adding two run of 36-inch buhrs, Champion smutter, four reel chest, new cloth for old reels, etc.

C. P. Hadley, of Portage, Wis., is building a new two-run improved mill at the above place, and Nordyke & Marmon Co., Indianapolis, Ind., has his order for the entire machinery.

John Boyle, of St. Martins, O., is refitting his mill at that place, and is adding two pairs of 30-inch stones, for wheat, and one pair 36-inch for middlings. Simpson & Gault are doing the work.

A special from Chicago states that the receipts of wheat in that city remain small, notwithstanding the statement by shippers that prices are five and six cents per bushel above an export basis.

Messrs. Ogilvie & Co., of Montreal, Canada, have ordered a full outfit of the Gray noiseless roller mills, and are to change the mill to a roller system. Ewd. P. Allis & Co. have the contract.

Ewd. P. Allis & Co. report sales of over 1200 of their Gray noiseless roller mills since 1st of January last. They are now furnishing 80 for Pillsbury & Co., of Minneapolis; 75 for Sanderson & Co., of Milwaukee.

The Seymour (Ind.) Milling Co. is about to build a six-run steam mill and a large elevator combining all the new ideas in that line. Nordyke & Marmon Co., of Indianapolis, Ind., are furnishing the entire job.

R. Tweedie, of Drayton, D. T., sends his order to Nordyke & Marmon Co., of Indianapolis, Ind., for a three-run new process steam mill. Spiers & Mekuchin, of Pembina, D. T., also order a three-run steam mill of the same firm.

Failure of the crops in Russia will afford a market for the splendid harvests of the United States. Official dispatches assert that Russia, usually exporting 40,000,000 quarters, or 320,000,000 bushels, will this year have to import breadstuffs. The outlook is encouraging for American farmers.

Work has been commenced on the 350,000 bushel elevator at Nashville, Tenn., for the Nashville Warehouse Co., under the direction of Nordyke & Marmon Co.'s superintendent, William Watson, Esq. The arrangement of this elevator is such that five cars can be loaded or unloaded at one time.

Elliott Robley's 3-run frame flouring mill, at Mapletown Depot, Pa., burned, Oct. 25. Loss estimated at \$12,000. No insurance. The mill was built 7 years ago and recently had an engine put in to furnish power when water was low. Coal and tan bark were used for fuel. The fire started in the vicinity of the engine.

Messrs. Kreisher & Son, Frankton, Ind., have contracted with Simpson & Gault for a five-run mill, complete, which is to be built at that place. It will consist of one 50-horse power Buckeye automatic engine, four run of 42-inch and one run 30-inch buhrs, one six-reel chest, one No. 2 purifier, one combined brush and separator, etc. This will undoubtedly be the largest flouring mill in that section of the State.

The Asonia Watch and Clock works, Brooklyn, said to have been the most complete of the kind in the United States, and having been in operation for only fourteen months, were destroyed by fire, October 26. The watchman declares that he witnessed an explosion of gas on the fourth floor, followed by a fierce outburst of flame. The loss is over \$1,000,000, and the insurance \$400,000. Phelps, Dodge & Co., a heavy hardware firm of New York, were largely interested in the works. Twelve hundred persons are thrown out of employment.

Heck Bros. were somewhat surprised to

have their mill suddenly stop and refuse to grind. They set about investigating the matter, and when they looked over the water wheel they found that a large eel had wended its way into the race and rather injudiciously became entangled in the wheel, and stopped the working of the whole mill. They pulled the eel out, and it measured two and a half feet in length. It is, probably, one of the eels that were placed in the pond about five years ago. This is no fish story; we never did believe an eel was a fish.—*Tecumseh* (Mich.) *Herald*.

P. B. Hughes an experienced miller has leased the mill on Rice Creek, 7 miles north of Minneapolis and after fitting it up thoroughly will be ready to turn out first class custom work.

An extraordinary case came under the notice of the medical staff at St. Thomas hospital, London, recently. A miller named Alfred Baxter was engaged at his work at some flour mills, and while fastening the chain tackle to the neck of a sack of flour, his thumb got caught, and he was dragged up a distance of over 12 feet, when the joint became detached, and he fell with a heavy crash to the ground. He was at once attended by his comrades, and was eventually removed to the hospital, where he now lies in a dangerous condition.

The following parties are putting in the Reynolds Corliss engine, build by Ewd. P. Allis & Co., Milwaukee: Sherman House, Chicago, 40 horse power. Smiley & Sisson Lakeville, Minn., 60 horse power. Chandler, Covgdon & Co., Beaver Dam, 60 horse power. Reveille yarn Mills, Natchez, Miss., 300 horse power. Natches Cotton Mill Co., Natchez, Miss., 300 horse power. Leadville Coal Co., Youngstown, O., 400 horse power. C. N. Nelson & Co. Stillwater, Minn., 800 horse power. Schulenbay & Boeckler, Stillwater, Minn., 800 horse power. Chicago Times, Chicago, 250 horse power. Atchison, Topeka & Santa Fe R. R. Co., 200 horse power. J. B. A. Kern, Milwaukee, 750 horse power. Daisy flour mills, Milwaukee, 300 horse power. The last two engines are of the compound type and will produce an extremely high economy.

New Method of Disintegrating Indian Corn.

An American named Bennett has devised a new method for separating the glutinous from the starchy matter in Indian corn in a dry state. The usual method of doing this by grinding the corn in a wet state has several strong objections. The offal produced is of little commercial value, as it cannot be profitably shipped any distance on account of the moisture it contains. If the corn is ground in the ordinary manner, in a dry state, it is impossible to effect a complete separation of the glutinous and starchy constituents.

The new system consists in subjecting the corn to whipping or beating in a properly constructed disintegrating machine having beaters which revolve rapidly in opposite directions. In this way the outer, hard, glutinous portion of each grain is broken into coarse particles, and the inner, starchy portion, which is much softer, is reduced to flour. The starch flour comes from the machine in suitable form for separation from the bran. Thus two or three products are made, either gluten and unbolted corn flour, or gluten, flour, and bran. The flour may be used for all purposes in which starch is employed, the bran for stock feed, and the glutinous matter, entirely free from starch, for food.

The advantages named by the inventor of this process are: Adaption to shipment to distant points, after the natural moisture has been expelled from the grain. Freedom from the vegetable oil in the gluten which makes the starch ordinarily have a bitter taste when used for grape sugar or corn syrup. A cooler process of separation is sustained, preventing the product from heating and sweating which take place when the corn is ground between stones.

The originator claims as his invention, and secures a patent on the process of obtaining the glutinous and starchy substances from Indian corn or maize, which consists in whipping or beating the corn until the soft starchy portions of the kernels are reduced to flour, when the tough glutinous portions of the kernels are reduced to coarse fragments, and then separating the fragments of glutinous matter from the starch-flour by suitable sieves or bolts, substantially as set forth.—*Leffel's News*.

A SUBSTITUTE FOR THE CRANK.—A device has recently been patented by Mr. Samuel W. Hanson, of West Union, West Virginia, intended to replace the crank in steam engines and other machinery where the crank is now used. On the end of the shaft, to the place

usually occupied by the crank, there is a heart cam, across the face of which, and at right angles to the shaft, a bar slides in suitable guides. The bar carries a lever, whose pivot is parallel to the main shaft and in the same horizontal plane. This lever has on each end a friction roller, which rolls on the periphery of the heart cam, and from one side of the lever projects an arm which is connected by a rod, with a pin working in a slot in the bar already mentioned. A slide on the bar is provided with two pins projecting downward on opposite sides of the pin connected with the rod. The slide is connected with a hand lever, by which it may be moved lengthwise on the bar. The bar is connected with the piston rod of a steam cylinder or any other prime motor, either directly or by means of a lever. The bar being reciprocated, exerts a pressure on the periphery of cam through the medium of the lever and its rollers. One end of the lever is below the center line of the bar, while the other end is above. This arrangement insures the rotation of the cam in one direction, and to reverse the motion of the cam, all that is required is to reverse the position of the lever by moving the slide. The inventor claims that the cam has no dead points, that the power and motion are equal throughout the stroke, and that for this reason a fly-wheel is unnecessary. He also states that he gains a great deal of power over the crank, that it will run either very slowly, or with any desired velocity, that it is capable of withstanding jars or shocks it is likely to receive, and is not liable to get out of repair.

Buckwheat.

The name of this plant, or rather the grain of it, is derived from the German word *Buckweizen*, "Beech-wheat," from the resemblance of the seeds to beech-masts. It is not properly a grain but belongs to the family of knot weeds of which there are several varieties in the Northwestern States. It is probably a native of China, but the time of its introduction into Europe is not well ascertained. It has been cultivated in England for about 300 years. It was introduced into North America by the Dutch early in the seventeenth century. Kalm, the Swedish naturalist, who visited this country in 1748 found it grown in Pennsylvania, New Jersey, and New York. There are three cultivated species—Common Buckwheat, *Polygonum fagopyrum*, Tartarian Buckwheat, *P. Tararicum*, and Notchseed Buckwheat, *P. emarginatum*. The first named species is chiefly cultivated in America, the second in Italy, and the last in China. In Europe it is grown for food from Russia to Italy, Great Britain excepted. In the United States it can be grown in every section, but is chiefly cultivated north of North Carolina and Tennessee. The total crop in 1820 was 7,201,743 bushels; in 1850, 8,956,916, and in 1860, including States and Territories, 17,571,818. It will be seen by these figures that the crop of 1860 was nearly double that of 1850, showing a greater increase than any other grain crop. In Pennsylvania and New York the grain is used extensively for feeding sheep in winter, and it has been found so valuable for this purpose, that the crop has increased enormously since 1850.

Boussingault gives the following as contained in the grain (A), and the straw (B):

	A.	B.
Water, per cent.....	12.5	11.6
Nitrogen, per cent. dried.....	2.40	0.54
not dried.....	2.10	0.48
Ammonia, dried.....	2.94	0.65
In 100,000 parts of Buckwheat straw Sprengel found 3,203 parts of ash, containing the following ingredients:		
Potash.....	332	
Soda.....	62	
Lime.....	704	
Magnesia.....	1,292	
Alumina.....	15	
Oxide of Iron.....	15	
Oxide of Manganese.....	32	
Silica.....	140	
Chlorine.....	95	
Sulphuric Acid.....	217	
Phosphoric Acid.....	288	
	3,203	

There is a striking similarity in the composition of buckwheat and rye. In the seeds of the former there is 27 per cent. of husk. The 73 per cent. of flour closely resembles that of rye in color and properties, containing 10½ parts of gluten and 52 of starch. The greatest resemblance exists in the constitution of the ashes, when both plants have been grown on the same soil. The dried grain of rye contains 24 per cent. of ash, and that of buckwheat 21 per cent. Buckwheat is frequently plowed in as manure for a wheat crop, for which purpose it is said to be, on some soils, fully equal to clover. Corn does not succeed well when it follows buckwheat, but on account of the soil being mellow and free from weeds, nearly all the cereals and root crops grow well after it. July is the month for sowing, but it can be sown as late as will enable it to escape frost.

Fiji and the Fijians.

INTERESTING TALK WITH THE GOVERNOR—PROGRESS IN CIVILIZATION, INDUSTRY, ETC.

From the New York Graphic, October 5th.

The newly-appointed Governor of the Fiji Islands, George W. Des Vœux, and staff arrived from England a few days since. He left this city yesterday en route for the Fiji Islands. A reporter for the *Graphic* called upon Governor Vœux at the Fifth Avenue Hotel and obtained much interesting information concerning that almost unknown and greatly misrepresented group of islands. Of the present condition of the Fijis and their commercial relations with other countries the Governor said he would speak from personal knowledge, having spent many months there.

"To begin with," he said, "I will say that the natives are no longer cannibals, but all of them are civilized and Christians. The islands since 1874 have been under British rule, the ex-King Cakoban, having ceded his domain to Queen Victoria, only asking in return that England take future control of them. Since that time great prosperity has been the result. Our farmers received the gold medal at the Centennial Exhibition, the Paris Exhibition and at the Sydney Exhibition for Sea Island cotton. They also took the gold medal for coffee at the late Sydney Exhibition. The growth of cotton has only been recently introduced on the island, but is making great strides. In the production of sugar much progress has been made, and in the next few years large crops will be exported. A Sydney corporation has recently invested £150,000 in sugar plantations, and it is expected that other companies will follow, the climate being excellent for the growth of sugar-cane. There are many thousands of acres of land on the larger islands set apart for the production of coconuts, and quite a trade has been established with the Sydney and Australian colonies. The copra, which is really the meat of the coconut, is valuable and turned into oil. The coffee yield in the third year after plantation is excellent, and has, in many instances, flowered in the second year. The labor market is all that is needed. The Government does not encourage the employment of native labor on plantations at a distance from their homes, as it tends to decrease the population of the islands. Abundant labor can be obtained through the Government from the Solomon Islands and New Hebrides at a very cheap rate. The cost of the planter with food is less than 1 shilling per day. Emigration has lately been started with the Indian colonies, so as to provide for any demand that may be made by reason of the extra cultivation of land. These laborers are generally engaged for three years, and receive their pay at one time, at the end of the contract, which cannot exceed that period. Then they are sent home, and if they choose to return they can do so after a limited time. They are paid through the Government, and the only cost to the planter in the three years is the price of the importation and return of the men.

"Trade, in various commercial productions, is growing rapidly, and in the next year or two it is expected to be still more enlarged. The revenue returns, before the islands were ceded to the English Government, amounted to about £13,000. In 1878, after four years of the present administration, the returns footed up £70,000, and last year £90,000. The white population now numbers a little over 2,000, and the native 120,000. Last year the births exceeded the deaths to a large degree. The area of the islands is about 80,000 acres, and the inhabited part is greater than that of the whole of the West Indies. The largest and representative island is Viti Levu, about the size of Jamaica, and the second of importance, Suva, similar to that of Porto Rico. The climate is wonderfully good for a tropical country, and there is an utter absence of malarial fever, the only disease being dysentery, occasioned by poor living and drinking to excess. The natives are by no means of an indolent disposition, as one would imagine. A large number of them employ themselves in cultivating cotton or coconuts on their own account, and, as a whole, are a peaceable race. There are no European soldiers on the islands outside of those attached to the Government department. The islands are divided into ten provinces, and each is governed by a Sub-Governor, or Roka, as they are termed. These are assisted by the advice of a European magistrate. They make a return of about £20,000 to the Government yearly on account of expenses. The colony is self-supporting and pays for a mail between Sydney and Viti Levu.

"Cannibalism is a thing of the past. No

more of it is seen or ever will be heard of again. The natives have become Christians through the agency of the Wesleyan churches and of Roman Catholic missionaries. In 1876 there were some 10,000 cannibals who chiefly resided in the mountainous interior of the Viti Levu. They committed serious outrages upon the coast natives, but ultimately they were subdued by the other natives, and to-day they are as peaceable and loyal as one could wish them to be. The ex-King, Cakoban, recently, in a speech addressed at a meeting of the various chiefs, gave his opinion that the natives had never been so well off as they now are under British protection. Two of his sons are Sub-Governors of different provinces, and exercise great influence over the chiefs and natives, as did the ex-King.

"In a short time the Government headquarters will be at Suva, where another church will be built. In Viti Levu there is a Mechanics' Institute, a public library and a club-house for the Europeans. So far we have no theater or public place of amusement, but a good many spend their time in yachting, boating, shooting and fishing.

"The houses are all of wood, not a brick is to be found on the islands. They are mostly built like villas—cottages with a veranda. Quite a number of these houses are now being sent from San Francisco.

"Monthly communication is had between the islands and New Zealand, Melbourne, Sydney and Auckland, New Zealand."

Governor Des Vœux will proceed to San Francisco, and thence go to Sydney, where a man-of-war will convey him to the Fiji Islands, occupying a week's time in the trip.

Discoveries Made by Accident.

BY F. H. STAUFFER.

Valuable discoveries have been made, and valuable inventions suggested, by the veriest accidents.

An alchemist while seeking to discover a mixture of earths that would make the most durable crucibles, one day found that he had made porcelain.

The power of lenses, as applied to the telescope was discovered by a watchmaker's apprentice. While holding spectacle-glasses between his thumb and finger, he was startled at the suddenly enlarged appearance of a neighboring church-spire.

The art of etching upon glass was discovered by a Nuremberg glass-cutter. By accident a few drops of aqua fortis fell upon his spectacles. He noticed that the glass became corroded and softened where the acid had touched it. That was hint enough. He drew figures upon glass with varnish, applied the corroding fluid, then cut away the glass around the drawing. When the varnish was removed, the figures appeared raised upon a dark ground.

Mezzotinto owed its invention to the simple accident of the gun-barrel of a sentry becoming rusted with dew.

The swaying to and fro of a chandelier in a cathedral suggested to Galileo the application of the pendulum.

The art of lithographing was perfected through suggestions made by accident. A poor musician was curious to know whether music could not be etched upon stone as well as upon copper.

After he had prepared his slab, his mother asked him to make a memorandum of such clothes as she proposed to send away to be washed. Not having pen, ink and paper convenient, he wrote the list on the stone with the etching preparation, intending to make a copy of it at leisure.

A few days later, when about to clean the stone, he wondered what effect aqua fortis would have upon it. He applied the acid, and in a few minutes saw the writing standing out in relief. The next step necessary was simply to ink the stone and take off an impression.

The composition of which printing-rollers are made was discovered by a Salopian painter. Not being able to find the pelt-ball, he inked the type with a piece of soft glue which had fallen out of a glue-pot. It was such excellent substitute that, after mixing molasses with glue to give the mass proper consistency, the old pelt-ball was entirely discarded.

The shop of a Dublin tobacconist, by the name of Lundyfoot, was destroyed by fire. While he was gazing dolefully into the smouldering ruins, he noticed that his poorer neighbors were gathering the snuff from the canisters. He tested the snuff for himself, and discovered that the fire had largely improved its pungency and aroma.

It was a hint worth profiting by. He secured another shop, built a lot of ovens, subjected the snuff to a heating process, gave

the brand a particular name, and in a few years became rich through an accident which he at first thought had completely ruined him.

The process of whitening sugar was discovered in a curious way. A hen that had gone through a clay puddle went with her muddy feet into a sugar-house. She left her tracks on a pile of sugar. It was noticed that wherever her tracks were the sugar was whitened. Experiments were instituted and the result was that wet clay came to be used in refining sugar.

The origin of blue-tinted paper came about by a mere slip of the hand.

The wife of William East, an English paper-maker, accidentally let a blue-bag fall into one of the vats of pulp. The workmen were astonished when they saw the peculiar color of the paper, he considered a grave pecuniary loss. His wife was so much frightened that she would not confess her agency in the matter.

After storing the damaged paper for four years, Mr. East sent it to his agent at London, with instructions to sell it for what it would bring. The paper was accepted as a "purposed novelty," and was disposed of at quite an advance over market price.

Mr. East was astonished at receiving an order from his agent for another large invoice of the paper. He was without the secret, and found himself in a dilemma. Upon mentioning it to his wife, she told him about the accident. He kept the secret, and the demand for the novel tint far exceeded his ability to supply it.

A Brighton stationer took a fancy for dressing his show-window with piles of writing paper, rising gradually from the largest to the smallest size in use; and, to finish the pyramids of nicely, he cut cards to bring them to a point.

Taking these cards for diminutive note-paper, lady customers were continually wanting some of "that lovely little paper," and the stationer found it advantageous to cut paper to the desired pattern.

As there was no space for addressing the notelets after they were folded, he, after much thought, invented the envelope, which he cut by the aid of metal plates made for the purpose.

The sale increased so rapidly that he was unable to produce the envelopes fast enough, so he commissioned a dozen houses to make them for him, and thus set going an important branch of the manufacturing stationery trade.

THE NEW ITALIAN IRON-CLAD.—The Italia, the largest war-ship yet designed, was launched yesterday from the dock-yard at Castellamare. The Italia was begun in July, 1866, and, like the Duilio, was designed by Admiral Brin. She numbers 14,300 tons. Duilio was also constructed at Castellamare, having been laid down in 1873, and launched in 1877. Looking at the Italia from the road skirting the mountain overhanging the arsenal, she did not appear anything like her real size; but the big hill of St. Angelo, five thousand feet, tends to dwarf the dock-yard and its ships. She is a handsome model, having a fine "entrance" and "run." She is built entirely of steel, 7,000 tons of which came from the Creusot works. She is 391 feet long between perpendiculars, 73 feet broad, the area of her midship section, 1,929 feet; draught of water, 27 feet; length of double bottom 264 feet; there are 13 water-tight compartments; she has a spur projecting 9 feet, and weighing 18 tons. Her armor will consist of four 100-ton guns; she will have a citadel, and its ends will be the turrets. Her four sets of engines will move twin screws. The length of stroke is three feet; the diameter of the steel shaft is 22 inches; the diameter of each screw is 16 feet, 6 inches; contract-indicated horse-power, 13,000. There are 26 tubular boilers, 76 furnaces, 6 funnels. It will thus be seen that the Italia is a vessel of great offensive and defensive power. She will possess the most approved and the most modern war appliances, and no doubt will show great speed. She will have two full-rigged masts.—*Parisian*.

Our Book Department.

For the convenience of our readers, we have made arrangements with publishers so that we can furnish any of the following works, postpaid, on receipt of price. All remittances must be made by post-office money order, draft on New York or Chicago, or by registered letter. For sums of less than \$1 postage stamps will be taken. Address all orders to

E. HARRISON CAWKEE,
Publisher United States Miller,
Milwaukee, Wis.

CRANK.—The Practical American Millwright and Miller. By DAVID CRANK. Millwright. Illustrated by numerous wood engravings, and two folding plates. 8vo, \$5.

CONTENTS.—Part I. Introduction—Chapter I. Mechanical Powers, The Lever, The Inclined Plane, The Wedge, The Screw, The Pulley and Cord, The Crank, II. Fly and Balance Wheels, Centrifugal Force and Circular Motion, Action and Reaction, Friction, III. Transmission and Transportation of Motive Power, IV.

Peculiarities and Properties of Pressure of Water, Taking Levels, Fitting Down Sills Under Water, Pressure of Water, Velocity of Falling Water, Tables of Velocity of Water and Quantity Discharged, Measuring a Stream of Water, Table of the Quantity of Water Passing Over a Weir, Part II. Water Wheels, V. The Undershot, VI. The Overshot, VII. Experiments with Wheels, Barker's Wheel, VIII. Central Discharge Wheels, IX. Spiral Screw or Flood Wheels, XI. Mill-Dams, Part III.—Saw Mills, XII. The English Gate, XIII. The Mulley Saw, XIV. The Gang, XV. The Circular Saw-Mill, The Edging Circular, Table of Logs Reduced to Inch-board Measure, Part IV. Grist Mills, XVI. Planning, Gearing, Belt Gearing, Gearing Overshots, The Building, The Husk Timbers, etc., The Bridge Trees, The Step, The Spindle, The Bed-Stone, The Driver, The Damsel, The Boxes, The Bushes, The Curb, The Hopper, Shoes, Mill Stones, Burr Stones, Truing the Stones, Draught, Dressing the Stones, The Quarter Dress, The Sickle Dress, Balancing the Runner, Bolts, Bolt Chests, Bolt Cloth, Smut Machines, Screens, Merchant or Manufacturing Bolts, Part V.—XVII. The Oatmeal Mill, The Kilm, The Process of Drying, Dressing, and Hanging the Stones, Manufacture of Split Pens, XVIII. The Barley Mill, XIX. Wool Carding and Cloth Fulling and Dressing, The Tenter Bars, The Shearing Machine, The Cloth Press, XX. Windmills, XXI. Steam Power, Index.

HUGHES.—American Miller and Millwright's Assistant. By WM. CARTER HUGHES. A new edition. In one volume, 12mo., \$1.50.

Among the Contents will be found the following: Introduction—Explanation of Technical Words, Part I. On the First Principles of Mechanics—Table of the Surfaces of Solids without Unusual Figures, Tables of Results of Experiments on Friction, with Unusual Figures, by M. Morin—Table of Diameters of First Movers—Table of Diameters and Circumferences of Circles, Areas, and Side of Equal Squares—Geometrical Definitions of the Circle and its Parts—Centre of Percussion and Oscillation, Hydrostatics: Introduction—On the Upward and Downward Pressure of Water—Specific Gravity—Table of Specific Gravities—Hydrodynamic Power of Water-wheels—On the Action and Reaction of Water, as applied to Water-wheels—On the Construction of the Combination Reaction Water-wheel—Table of Velocities of Water-wheels per minute, with Heads of from four to thirty feet—Table of the Number of Inches of Water Necessary to Drive one Run of Stone for Grist or Saw-mills on Heads of four to thirty feet—Table showing the Required Length of Overshot and Breast-wheels on Heads of ten to thirty feet—Table showing the Velocity of Water, Part II.—Practical Milling and Millwrighting.

PALETTE.—The Miller's, Millwright's and Engineer's Guide. By HENRY PALETTE. Illustrated. In one vol. 12mo., \$3.

LEFFEL.—The Construction of Mill-Dams: Comprising also the building of Race and Reservoir Embankments and Head Gates, the measurement of streams, gauging of water supply, etc. By JAMES LEFFEL & Co. Illustrated by 58 engravings. 1 vol. 8vo., \$2.50.

LARDNER.—The Steam Engine: For the use of Beginners. By Dr. LARDNER. Illustrated. 12mo, 75 cents.

TEMPLETON.—The Practical Examiner on Steam and the Steam Engine: With Instructive References relative thereto, arranged for the use of Engineers, Students, and others. By WM. TEMPLETON, Engineer. 12mo., \$1.25.

BOURNE.—Recent Improvements in the Steam Engine: In its various applications to Mines, Mills, Steam Navigation, Railways, and Agriculture. Being a supplement to the "Catechism of the Steam Engine." By JOHN BOURNE, C. E. New Edition. With numerous Illustrations. 16mo. Cloth, \$1.50.

BYRNE.—Handbook for the Artisan, Mechanic and Engineer: Comprising the Grinding and Sharpening of Cutting Tools, Abrasive Processes, Lapidary Work, Gem and Glass Engraving, Varnishing and Lacquering, Apparatus, Materials and Processes for Grinding and Polishing, etc. By OLIVER BYRNE. Illustrated by 185 wood engravings. One vol. 8vo., \$5.

EDWARDS.—A Catechism of the Marine Steam Engine. For the use of Engineers, Firemen and Mechanics. A Practical Work for Practical Men. By EMORY EDWARDS, Mechanical Engineer. Illustrated by 60 engravings, including examples of the most modern Engines. In one volume, 12mo., \$2.

WATSON.—The Modern Practice of American Machinists and Engineers: Including the Construction, Application and Use of Drills, Lathe Tools, Cutters for Boring Cylinders and Hollow Work Generally, with the most Economical Speed for the same; the Results Verified by Actual Practice at the Lathe, the Vice, and on the Floor, together with Workshop Management, Economy of Manufacture, the Selection of Engines, Boilers, Gears, Belting, etc., etc. By ROBERT F. WATSON, late of the "Scientific American." Illustrated by 86 engravings. In one volume, 12mo., \$2.50.

LUKIN.—The Young Mechanic. Practical carpentry, containing directions for the use of all kinds of tools, and for construction of steam engines and mechanical models, including the art of turning in wood and metal. By JOHN LUKIN, author of "The Lathe and Its Uses," etc. Illustrated. 12mo, \$.75.

LUKIN.—Amongst Machines: Embracing descriptions of the various mechanical appliances used in the manufacture of wood, metal, and other substances. 12mo, \$1.75.

LUKIN.—The Boy Engineer: What They Did, and How They Did It. With 30 plates. 12mo, \$1.75.

WILSON.—A Treatise on Steam Boilers: Their Strength, Construction and Economical Working. By ROBERT WILSON. Illustrated. 12mo, \$2.50.

CONTENTS.—Chapter I. Introductory. II. Strength of Cylinder, Sphere and Flat Surfaces. III. Properties and Character of Boiler Materials. IV. Riveting. V. Welding. VI. Construction of Boilers. VII. Boiler Mountings and Setting. VIII. Insulation. IX. Wear and Tear. X. Factor of Safety. XI. Testing. XII. Boiler Explosions. XIII. Combustion of Coal. XIV. Smoke Prevention and Firing. XV. Heating Surface. XVI. Boiler Power. XVII. Bursting and Collapsing Pressures of Cylinders.

ROBINSON.—Explosions of Steam Boilers: How they are Caused, and How They May be Prevented. By J. R. ROBINSON, Steam Engineer. 12mo, \$1.25.

CONTENTS.—Explosions Caused by Low Water, by Over-Pressure, by Defects in Materials, etc.; by Scale or Sediment, by Repulsion of the Water; by Overheating of the water; How Explosions are Caused by Low Water, by Over-Pressure, by Defective Materials, etc.; by Scale and Sediment, by Repulsion of the Water, by Overheating of the Water, May be Prevented.

NYSTROM.—A New Treatise on Elements of Mechanics: Establishing Strict Precision in the Meaning of Dynamical Terms: accompanied with an Appendix on Duodenal Arithmetic and Metrology. By JOHN W. NYSTROM, C. E. Illustrated, 8vo, \$4.

MOLESWORTH.—Pocket-Book of Useful Formulae and Memoranda for Civil and Mechanical Engineers. By GUILFORD L. MOLESWORTH, Member of the Institution of Civil Engineers, Chief Resident Engineer of the Ceylon Railway. Second American, from the Tenth London Edition. In one volume, full-bound in pocket-book form, \$2.

ROPP'S COMMERCIAL CALCULATOR: Containing many convenient and valuable Tables, showing the value of Wheat, Corn, Rye, Oats, Barley, Cattle, Hogs, Hay, Coal, Lumber, Merchandise; the simple and compound interest at 6, 7, 8 and 10 per cent.; Measurement of Boards, Scantlings, Timber, Saw Logs, Cisterns, Tanks, Granaries, Corn-Crises, Wagon-Beds, Time Table, Wages Table, etc., etc.; also entirely new and Practical Method of Rapid Calculation. By CHRISTIAN ROPP, Jr. Pocket-book form, cloth, \$1.

MCLEAN.—The Miller's Test-Book. By JAMES MCLEAN, of Glasgow, Scotland. Price, postpaid, 60 cents.

Any other books, either domestic or foreign, that our readers may desire, we shall be pleased to obtain and furnish to them at the lowest rates, postpaid, to any part of the United States or Canada.

About Our European Cousins.

[Translations made from the German and Austrian Milling papers expressly for the UNITED STATES MILLER.]

THE *Ungarische Muehlen Zeitung* remarks: A new American technical journal has come to the conclusion that peculiar as the relations in Europe now are, a prolonged war between France and Austro-Hungary is inevitable, and that the Hungarian industry of milling would then be destroyed on account of the inability to obtain French stones. We look forward to the French-Austro-Hungarian war with the same calmness as to the want of millstones which shall grow out of it. It may perhaps be of interest to our new colleague, however, to be informed that in Sarespatak in Hungary, millstones are quarried, which are not at all inferior to the French burr-stones. If the ruin of our milling industry is dependent on this, it will certainly live to a very old age.

ABOLITION OF THE GRAIN TARIFF IN GERMANY.—The opposition to the grain tariff in Germany is still continuing and spreading more and more. Scarcely has the subject of abolishing the grain tariff been broached in the Prussian Diet (occasioned by the interpolation regarding the distress in certain parts of Prussia), when it is already said that a petition is being circulated among the Berlin merchants, in which the abolition of the grain tariff is absolutely demanded. In the German press, too, the same demand is made. The state of the market and the high prices of grain are referred to, in consideration of which the tariff might become fatal in case the harvest should eventually prove a poor one. The Prussian Government does, to be sure, as yet superciliously ignore this agitation, and officially declares that it does not think of an abolition of the grain tariff. It will, however, not be able permanently to deny this demand which is becoming daily more urgent. —*Oesterreichische-Ungarische Mueller.*

EFFECTIVE MEANS OF REGULATING PRICES.—A comfortable means of preventing the rise of the prices of commodities has been devised in Teheran. Although there is no reason for high prices there, they have been considerably raised of late. The last harvest was not a poor one, the next promises to be excellent, and yet meat and bread are exceedingly dear. In order to do away with this state of things the Prince Regent Raib "Es" Sallanet made a tour through the Bazar, and all the bakers and butchers who asked unreasonable prices had their earlaps immediately clipped off, while others were not lead by their ears to the doors of their shops for several hours, upon which proceedings the prices were instantly reduced all over the Bazar.—*Pappenheim's Oesterreichische Handels Journal.*

RESULTS OF THE GRAIN TARIFF.—It is reported the steam mill of Leer has notified all of its employes that it will shortly stop working—a result of the new tariff era. The interested parties—eleven shareholders in all—have come to the conclusion that for their establishment it is an impossibility to comply with the tariff regulations, as they have at length after much procrastination been definitely issued by the Council of State and to continue their profitable export trade to Holland. But without this export, a profitable business is out of the question, and for that reason the shareholders resolved at their last meeting to close the mill and not squander money in a hopeless fight with the impossible. The steam mill in Bremen has for some time been closed for similar reasons, and it is undeniable especially in Westphalia and on the Rhine that more establishments will be compelled to do the same.—*Die Muehle.*

[Translated from the German for the UNITED STATES MILLER.]

American Flour.

The *Ungarische Muehlenzeitung* publishes an article treating of the differences between American and Hungarian flour, from which we quote the following:

It must be said of the Scotch that they are the best judges of flour in the world; it may be because they, more than all others, have had before them and have had the opportunity of comparing the real value of the most diverse kinds of flour from the most diverse quarters of the globe. These judges of flour are willing any day to pay 10 per cent. more for Hungarian than for American flour. The same may be said of Amsterdam and Rotterdam merchants. The London Corn Exchange quotations of the 14th of June, for instance, quote American flour "Patent Process extra fine" at 40 sh. per barrel, Hungarian 5 Crowns at 62 sh. per 280 lbs. While according to this,

100 lbs. of the former would bring 20 sh., the latter would come to 20 sh. 2½ d. and a fraction for the same amount. This can be due only to the absolutely greater intrinsic value of the latter article.

Several large American mills produce as many as eight different kinds of flour. The majority of mills, however, make no more than 3 or 4 kinds. This is no reproach whatever. Our mills could well congratulate themselves if they had less degree in quality to deal with, for each one is a separate article of trade with its separate market and separate season. In this way every mill deals in 12 different articles of trade, while it would otherwise have to deal with only a few.

The poorer qualities of American flour contain exactly as much gluten as the finer qualities. This is certainly an advantage. Our own fine qualities of flour contain less gluten than the darker qualities, simply because the fine flour is produced solely from the grits of the kernel, consequently contains only the gluten which forms the walls of the starch-cells, while the real layer of gluten lies below the husk of the kernel and is ground together with it to a dark quality of flour. These American mills which produce 8 qualities of flour likewise obtain them from the grits, and the greater amount of gluten is then too to be found in the poorer qualities. When only 3 or 4 kinds are produced, however, the same amount of gluten is distributed among them, and each one kind will receive a larger portion of it. The poorer qualities of American flour are very hard to bake, and this serves to prove our opinion that it is the quality and not the quantity of the contents of gluten that is of importance, and the quality of the Hungarian gluten is far superior to the American. Hungarian flour No. 9 will furnish quite good bread, certainly much better bread than is commonly sold in London. About the color of flour there should be no dispute, since this is a matter of either opinion or taste. Yet we may remark that if the Hungarian mills would grind their No. 0 in the same way that Americans grind their Patent flour, it would not be of nearly as bright, light a color as is now the case. It can therefore not be said that the American Patent flour looks finer than the finely ground Hungarian flour.

As to the baking qualities, the Patent flour is far inferior to No. 0 of Pest flour.

Now considering that it is claimed that the American flour has a nicer color, can be better baked and is stronger, how is it that in the market of the world it is rated at such a much lower figure than the Hungarian flour?

[Special correspondence of the UNITED STATES MILLER.]

Our Austrian Letter.

[Communication from Buda-Pest, translated by R. BIRKHOLZ.]

The Cincinnati Millers' International Exhibition has verified graphically that the excitement which was prevailing among the millers of the United States for several years, was perfectly reasonable. The fear, that the old way of milling was bound to be abandoned and a new system had to be introduced was shown to be rather of just cause. Enormous sums have been spent during the last years for improvements in milling, and yet the ingenuity of our mill experts was not contended; new ideas, new applications and ameliorations of existing devices had to be brought forth to continue their strife for progress. Hungary, the milling centre of Europe, was the first which gave the impulse of improving on the system inherited by generations. It was there, where the grinding with stones was first almost radically abandoned—it was there where roller mills first were substituted for stones. The German, Austrian, Russian, English and American millers were watching the proceedings of their Hungarian fellow craftsmen with the greatest attention.

Our American millers have been well aware of what was going on in Pest. They, as a nation, are justly acknowledged abroad as "go ahead"-people. No sooner is an invention considered practicable and lucrative—than it will be adopted by the Americans; should its application cost fortunes, there is no impediment so formidable as that could not be overcome. First, some important American millers traveled across the ocean for the purpose of learning, they ordered some of the machines recently engaged for milling purposes; then went some of the best milling engineers to convince themselves on the spot of the real benefit of "changing," and we notice to-day such radical changes going on in a great number of large and small mills in this country as we think never took place at once in the whole of

Europe together! The millers are aware of profit in "changing." They know that they must discard the old way of manipulating grain in their mill if they want to compete quantitatively as well as qualitatively.

The leading idea amongst the millers of to-day is, to improve their machines more and more, in order to do more perfect work with them. It is astonishing, for instance, how much the simple chapter "Roller Mills" has been elaborated! Many of the existing designs of Roller machines were seen at the exhibition at Cincinnati, giving the visitors full benefit to study the efforts "to excel."

The originator of this great movement, rather dreadful to the millers' pocket at the first glance, but a source of vast profit to the circumspet, was Mr. Fr. Wegmann in Zurich, Switzerland. He can justly be called the reformer of milling, for with the introduction of his roll-system, impulse was given to the invention and improvement of machines to perfectly purify the great amount of middlings thus obtained. We will give the biography of Mr. Wegmann in our next issue and hope to meet the wishes of many of our readers if we now entertain them with the history of Ganz & Co., who may be called the PROMOTORS of the system originated by Mr. Fr. Wegmann, considering their fortunate results in improving the roller machines.

In the year of 1844, Mr. Abraham Ganz, a citizen of Switzerland, emigrated to Hungary, to the city of Ofen, opposite Pest. We have to remark here that nearly all the celebrated men at Pest, millers and experts, are not all Hungarians by birth. The greater number hail from our sister-republic, Switzerland. *Swiss men* made the fame of Pest. Mr. Ganz started a small foundry there. The commencement was very moderate and for the first 10 years he only turned out common small castings. In 1854 Mr. Ganz began, encouraged by the help of some railroad acquaintance, to manufacture car wheels, which, owing to his ability and the excellent Hungarian charcoal iron, proved very lasting. His fame began at that time and many of the largest railroads of Europe became his customers. In the year 1867 Mr. Ganz died and business was carried on by his heirs under the remaining management of Messrs. Eichleiter, Keller and Mechwart. In the year 1869 the factory was changed into a stock company under the name of Ganz & Co., with president Paul von Somssich, ex-president of the Hungarian house of representatives, and chief engineer Mr. A. Mechwart. The firm owns one branch factory at Pest, one at Ratibor in Silesia, and one blastfurnace with mines in Upper Hungary. The establishment consists at present of a foundry, machine-shop, and car-shop; it manufactures as specialties: gears, railroad crossings and frogs, projectiles, all of chilled iron, and roller mills with smooth or corrugated rolls.

Since 1874 Mr. Michwart has concentrated all his energy on the improvement of roller mills; he is the man who really broke the way for the development of the happy idea of Mr. Fr. Wegmann, by his constant improvements and the business-like manner of making the milling world notice the machines, buy and try them. The first rolls, which were built by the firm, were porcelain rolls according to Mr. Fr. Wegmann's directions. After some time the material of the roll bodies was changed from porcelain to chilled iron also the rather primitive roller frames were greatly improved and at once sprung into existence the constant fight about porcelain and chilled iron, and the competitive roller mills of all possible and impossible designs ever were invented (?) and Mr. Mechwart's energy was called upon very forcibly to improve, in order to keep "on top."

The rolls in the Wegmann frame were arranged like the ones in the Sulzberger frame, horizontally along each other, but they were not pressed together with screws as those were. Wegmann employed weights or levers to obtain a uniform pressure, and to have the rolls self-adjustable according to the sometimes irregularly passing of the feed. The mate roll of each pair was driven at first by friction. This arrangement was really not new as it was used previously on paper calendars and malt and oilseed rolls. New was the idea of using it for milling purposes. Ganz & Co. have the merit of applying screws to the lever motion for the purpose of confining the rather loose and unlimited action of the pressure combination. New was Wegmann's idea of once grinding the stuff, as it was customary before to grind two or three times consecutively without bolting the grindings after each pass. The construction of the Wegmann roller mill was liked very much in-

deed, especially after he improved it so as to give motion to the mate roller by differential gearing; but after they were tried at Pest they were unfavorably criticised. It seemed that the opposition mainly culminated on the fragility of the material employed. Now Ganz & Co. substituted chilled iron roll bodies in place of the porcelain shells, which subsequently proved a very happy idea. There are now by far more chilled iron rolls made and sold than porcelain rolls.

(Translator's remark: Porcelain rolls can never be superseded by smooth iron rolls for *flouring* of fine purified middlings without caking and without the thus necessitated subsequent disintegration, be it by separate disintegrating or centrifugal bolting machines. They can never be substituted by iron rolls for obtaining the *shirpest* and *whitest* flour. As to the fragility I explain that the old mode of fastening the shells by sulphur has long been discarded, and that the liability of breakage is reduced to a minimum. Iron rolls are perfect in their place and far superior to porcelain rolls for *sizing* coarse middlings and removing germs and brany particles. As to the quality of the rolls made of European cast iron—we can flatter ourselves, that our American cast iron is found by actual tests to take a harder chill, to be denser and clearer than any European iron.)

Ganz & Co. were the first who furnished two of the larger mills in Pest with a system of corrugated rolls in the year of 1875. The oblique corrugation and the shape of the tooth are valuable inventions of Messrs. Ganz & Co. They experimented with them long before they put them into market and found after having tried all possible shapes of corrugations that the sharp saw-tooth corrugations were working the most economically, producing the purest middlings. Corrugated rolls had of course been in use before, but they did not work successfully, owing to their wrongly constructed corrugations and framing.

After Ganz & Co.'s introduction of their rolls, stone after stone was laid idle and the system of breaking the wheat on corrugated rolls, a system now declared unanimously the most economical, sprung into life.

Different materials were tried for roll bodies, soft cast iron, steel, granite, all those did not prove durable enough for the purpose, and the only two materials now used are porcelain and chilled iron. Mr. Mechwart's newest invention, the ring-roller machines, prove his ardent efforts to perfect the roller mills. He was congratulated by many scientifically educated mill experts and mechanics for the introduction of the same. These ring-roller mills are desired not only in Austro-Hungary, but also in England, and even here in the United States we can point out various mills which use and give them the best of credit. The machines save power, about one-half horse-power per machine, in bearing friction, which means quite an amount of coal per year, say about seven to ten tons. Very important is Mechwart's low grinding arrangement on those ring-roller mills with applied shaker sieves. Thus the owners of small mills are enabled to grind their wheat down to flour by once passing it through one machine. The quality of the flour thus produced is better than the flour of wheat ground low on stones, also the yield is far more considerable, and the bran not cut so much as with stones.

Ganz & Co.'s general agents for the United States are the Throop Grain Cleaner Co., at Auburn, N. Y., and Messrs. E. P. Allis & Co., at Milwaukee, Wis. The sole manufacturers of the ring-roller machines are Messrs. E. P. Allis & Co., of Milwaukee, Wis. Both parties will be pleased to give all desired information concerning Ganz & Co.'s machines, and the new system of grinding, if called upon.

DUPIN.

"PAY JOHN WILLIAMS."—At a church meeting not far from Boston, a man whose credit was not the best, and who was somewhat noted for his failure to meet his obligations, arose to speak. The subject for the evening was, "What shall I do to be saved?" Commencing in measured tones, he quoted the passage, "What shall I do to be saved?" He paused and again more emphatically asked the question, "What shall I do to be saved?" Again, with increased solemnity and impressiveness of manner, when a voice in the assembly answered in clear and distinct tones: "Go and pay John Williams for that yoke of oxen you bought of him!" The remainder of the gentleman's address was not reported. All present appreciated the fitness of the unexpected words in season, and were saved from hearing a lengthy exhortation from a swindler's lips.

He Took All the Bets.

REMARKABLE JUMP MADE BY A CARSON VALLEY GRASSHOPPER.

[From the Carson (Nev.) Appeal.]

Some weeks ago John Mackay was sitting in the Gould & Curry office, reading about the "Jumping Frog of Calaveras," when an idea struck him that some sort of a trick like that would be a splendid thing to ring in on Maurice Hoeflich, the mining expert. Hoeflich is around the office a good deal, and whenever he takes a lunch with Mackay he is sure to get in some sort of a dispute and offer a bet. Mackay don't like betting and frowns it down unless he thinks people are trying to bluff him. At last he determined to cure Hoeflich of his habit and find where the weak spot in his armor lay.

One day he saw Hoeflich on the stoop playing with an enormous grasshopper, which he was teaching to jump. Hoeflich's grasshopper could jump twenty-three feet, and it wasn't long before he remarked to Mackay:

"I'll bet you \$2 dot you can't find a hinsect to peet him."

Mackay bet \$10 that he could beat it, and Hoeflich raised him to \$20 at once. The bet was closed at these figures, and Mackay said he would have the hopper there in a day or so. He then sent a trusted emissary down to Carson Valley to secure a contestant for the winged steed of Hoeflich.

The man spent nearly a week roaming in Carson Valley catching hoppers. He finally sent an official report to Mackay, stating he had caught over three thousand grasshoppers and put them through their paces. The best gait any of them had was seventeen and three quarter feet. He doubted if a bigger jumper could be secured. On receipt of the letter, the Bonanza Prince telegraphed to the man to bring him up any way.

The next day he arrived with about a dozen hoppers from farmer Treadway's, and Mr. Mackay gave them quarters in his room, as Vanderbilt would stable his stud. Each hopper had a cigar-box to himself, and every morning they were taken out and put through their paces. It was impossible, however, to get one to jump over eighteen feet, although all sorts of invigorating food was given them.

Mr. Mackay was in despair, but one morning a hopper sniffed at a bottle of ammonia on the table, and immediately jumped thirty feet. After making a few experiments it was found that one whiff of ammonia so enlivened the hoppers that they could make jumps that were almost incredible. Next day Mackay announced to Hoeflich that he was ready for the match. The expert was ready at 9 o'clock, an hour before the time, with his pet hopper. Not finding Mr. Mackay in, he sat down in his study, and there noticed the bottle of ammonia. While he was examining it, Bridget, the old and faithful domestic of the Gould & Currie firm, came in with:

"Don't be techin' that numonia, Mr. Hoeflich. It's to make Mr. Mackay's hoppers sprightly. Bedad, I believe by the robes of St. Patrick, he's out o' his senses since the pump broke at the north ind."

Hoeflich pumped the domestic, and soon knew all about Mackay's game.

A light broke upon Hoeflich; grabbing the bottle, he rushed up street to Perkins' drug-store, threw away the ammonia, and ordered it filled with chloroform. In ten minutes he was back, and leaving the bottle where he had found it, got out of the place as fast as he could.

Mackay soon arrived with half a dozen mining superintendents he had invited up to see him have some fun with Hoeflich.

They were hardly seated when Hoeflich came in with the hopper in a cigar-box under his arm.

"I vas a leetle late, Mr. Mackay, but I'm here mid der hopper and der coin."

He laid down the money, which was covered promptly.

"Any one else to pet?"

Joe Stewart laid down \$100.

John Kelly put up \$50.

Warren Sheridan stepped in for \$200.

Hank Smith wanted a like amount.

Sam Jones had only \$50, but he put it up.

Then a few got into the corner of the room and concluded it was a shame to rope Hoeflich in, in that way, and finally agreed to give the money back after they had won it. Mackay then bantered Hoeflich to raise the pot 100 shares of Union Con. Hoeflich wrote an order on his broker, and remarked:

"Dar's no limit to de bets, gentlemen; de coin speaks."

Nearly every man doubled his bet, and then Mackay got behind Sam Jones and let his hop

per sniff of the ammonia bottle, which held Hoeflich's chloroform.

Time being called, the hoppers were placed side by side on the piazza, and at the word "go," each insect was touched on the back with a straw. Hoeflich's grasshopper described a semi-circle in the air, and scored twenty-four feet. Mackay's gave a lazy lurch of some four inches, and, folding its legs across its stomach, fell fast asleep. Jones swore that he could hear it snore.

Hoeflich walked back into his room, swept the coin into a canvas sack, and Mackay wrote out an order for stock. Hoeflich went up the street with his hopper under his arm, leaving the others too astonished to speak. Presently Sheridan put the ammonia bottle to his nose and called Mackay's attention to the smell.

"Chloroform, by gracious!"

Then the Milesian woman who was the cause of all the mischief, appearing with a broom, announced that it was "swapin' time," and the crowd dispersed, each going in different directions.

As Mackay started for the Union shaft he remarked:

"That fellow Hoeflich does play in d—queer luck."

And to this all handa inwardly agreed.

Flour Milling and Profit.

BY H. G. BAKER.

It is presumable that no man engages in business with the idea, or impression, that its prosecution will return but a bare livelihood. We are all actuated by a desire to make money, and, probably, there is not a man in existence, no matter how straightened his circumstances may at present be, who does not anticipate a turn in fortune's wheel for his benefit. But fortune's wheel may turn and turn again, without benefitting us if we are not prepared to seize the opportunities it presents. Competition is said, and truly, to be the life of trade, because it stimulates and arouses the abilities of the men engaged in business, to provide those whose trade they seek, with articles a little better in quality, or a little lower in price than they can elsewhere obtain. Competition stimulates inventive genius, and to it, are we largely indebted, for the innumerable labor-saving devices and processes now in use. Many millers believe that the new process of milling has been adopted to enable inventors to make money, but this is not the case by any means. It has been adopted because it enables the miller to make more flour of a better grade than would otherwise be possible. It costs just as much for the wheat, to make a barrel of flour under the old system of milling, as it does to make one under the new, but the market value of a barrel of flour made the old way is considerably less than that of one made under the new process, and a large proportion of this difference in value represents profit to the new process miller.

Suppose William Jones and Henry Brown each own mills of about the same capacity and purchase their wheat in the same market. Now if one is no better miller than the other, and both carry on the same system of milling, it is clear that one would make no better flour than the other, hence no competition could result. But, if Brown could, by changing his methods, produce more high grade flour than Jones, competition would be possible; and, should Jones continue on in his old way, Brown would, very soon, control the market in that vicinity. If Jones and Brown had been milling under the old system, the adoption of the new process would give him the advantage here named over Jones, and, though Jones and Brown are mythical personages, there are thousands of parallel cases to them in the United States to-day. But, it may be urged, if we adopt the new process of milling, we must go to an expensive and entire reconstruction of our mills, and this is something the small miller cannot afford.

The prevalence of this opinion has operated to prevent great numbers of our small millers giving the subject that attention which its merits deserve, and this lack of attention has rendered possible the placing of flours, made hundreds of miles away from them, on their own markets, with which they are utterly unable to compete, either in quality or price. Now, if it was a fact that this new process of flour could not be adopted, except the entire fixtures of the mill were torn out, and new and expensive machinery substituted therefor, it would be wise to hesitate long, and be amply assured that the investment would be remunerative before concluding to make the change, but there are thousands of mills in which but little change would be required, and in which the cost of alteration

would be a comparatively inexpensive matter. Again, there are thousands of small mills that have been remodeled, and that are milling in accordance with the new process, that are to-day, and have been since they adopted the system, making money. The question is not, shall you adopt it, but can you afford to make flour in any other way? It has been estimated that there are flouring mills enough in the United States to reduce its entire wheat crop to flour, if all were operated six months in the year. Our exports of wheat, the past year, reached 180,000,000 bushels. Do you know what this export of wheat means? It means that 1,000 three-run mills could have found all they could do, grinding seven bushels per hour, twenty-four hours per day, for twelve consecutive months, in reducing to flour the wheat we exported; it means that the past year saw the equivalent of three thousand run of stone absolutely and entirely idle; it means that capital, to an extent sufficient to build and equip one thousand three-run mills, is tied up, or virtually sunk, returning no interest whatsoever, and the property representing it is yearly depreciating in value.

In every branch of manufacture you will find more or less capital invested, that produces no revenue or profit, but the proportion of idle capital invested in flour mills, is too large. For three years past, European demands for wheat have been extraordinarily large, but this, instead of being beneficial to the millers of the United States, has operated to their detriment, because it has permitted fictitious values being placed upon the wheat, and rendered it impossible for the miller to carry on his operations with any degree of certainty of securing a price for his flour at all commensurate with the cost of his wheat. In spite of this uncertainty, however, large amounts of flour have been manufactured and exported, but, what mills think you have made this flour for exportation? Certainly not those which continue on the old system of milling. They are the ones that have been idle; they could not, under any circumstances, produce as good a flour as mills operating under the new process, nor could they obtain their product as economically, and they had to give up. Why is it, that, pick up what milling paper you please, glance at its columns of mill items, and the majority of them indicate that improvements are being made only in Western mills? And why is it that in every little Eastern village you will find Western flour exposed for sale, and actually displacing flour of home manufacture? The mass of the people do not buy flour because it may be labeled "Patent," they may buy it once, to try, but if it is not absolutely better and cheaper than what they have hitherto been using, they do not continue purchasing it. We have more than sufficient milling capacity in the Eastern States to reduce to flour all the wheat grown therein, but it is not by any means an uncommon sight to find the wheat buyer, standing ready to purchase this wheat for shipment abroad; and this, too, in spite of the fact, that, in the immediate locality of his purchases, are mills, standing idle, because their proprietors are too stingy to incur the slight expense to fit them up for producing, from this home-grown wheat, a flour equal, if not superior, to that of Western manufacture. Talk with one of these proprietors, and he will tell you milling don't pay; that he would like to dispose of mill but can find no purchaser. Suggest to him the propriety of remodeling, and he looks at you in a dazed manner, as if he were mentally calculating your sanity. This man can buy wheat at his own door; can make it into good flour; can keep his mill busy and paying; can make it more valuable as property to hold or to sell, and yet, he shuts it up to decay on his hands, and sends his money West to buy flour with which to sustain his useless life. We have lots of millers of this kind.—*The Milling World.*

The Habit of Self-Control.

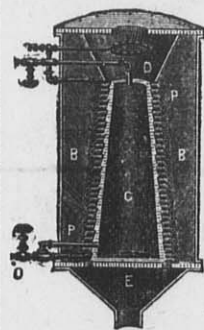
If there is a habit which, above all others, is deserving of cultivation, it is that of self-control. In fact, it includes so much that is of value and importance in life, that it may almost be said that, in proportion to its power, does the man obtain his manhood and the woman her womanhood. The ability to identify self with the highest parts of our nature, and to bring all the lower parts into subjection, or rather to draw them all upwards into harmony with the best that we know, is the one central power that supplies vitality to all the rest. How to develop this in a child may well absorb the energy of every parent; how to cultivate it in himself may well employ the wisdom and enthusiasm of every youth. Yet

it is no mysterious or complicated path that leads to this goal. The habit of self-control is but the accumulation of continued acts of self-denial for the worthy object; it is but the repeated authority of the reason over the impulses, of the judgment over the inclinations, of the sense of duty over the desires. He who has acquired this habit, who can govern himself intelligently, without painful effort, without fear of revolt from his appetites or passions, has within him the source of real power and of all true happiness. The force and energy which he has put forth day by day, and hour by hour, is not exhausted nor even diminished; on the contrary, it has become increased by use, and has become stronger and keener by exercise; and, although it has completed its work in the past, it is still his well-tryed, true and powerful weapon for future conflicts in higher regions.—*Philadelphia Public Ledger.*

THE Chief of the Bureau of Statistics furnishes the following information in regard to immigration: There arrived in the customs-districts of Baltimore, Boston, Detroit, Huron, Key West, Minnesota, New Orleans, New York, Passamaquoddy, Philadelphia and San Francisco, during the month ended September 30, 1880, 67,435 passengers, of whom 54,875 were immigrants, 8,464 citizens of the United States returned from abroad, and 4,096 aliens not intending to reside in the United States. Of this total number of immigrants arrived, there were from England, 7,770, Scotland 1,653, Wales 62, Ireland 6,394, Germany 13,141, Austria 1,099, Sweden 3,194, Norway 1,668, Denmark 751, France 568, Switzerland 741, Spain 29, Holland 202, Belgium 211, Italy 561, Russia 255, Poland 91, Finland 25, Hungary 596, Dominion of Canada 16,059, China 239, Cuba 325, Australia 92, Mexico 26, all other 70.

SUBSCRIBE for the U. S. MILLER. Only \$1 per year.

Welch's Improved Wheat Heater



WITH STEAMING ATTACHMENT.

First premium Millers' International Exhibition.

Its superiority over all others is fully established.

Heats every grain of wheat evenly and thoroughly.

WE GUARANTEE SATISFACTION or no sale, and invite a trial of thirty days to prove our claims.

Send for circulars and prices to

Albert B. Bowman, Manufacturer,

703 Market Street, St. Louis, Mo.

All parties who desire to obtain

EUROPEAN PATENTS

Will do well to consult the undersigned, who is a thorough milling expert as well as

Solicitor of Patents.

Unquestionable references furnished in Europe or America on application. Address all communications to

P. SCHNEITLER,

april Berlin N., Muellerstrasse 179 B., Germany.

N. B.—I respectfully ask that manufacturers of American milling machinery and agricultural machinery will favor me with their catalogues. Address as above.

TO RENT, SELL OR TRADE—A two-run Water Mill and 160 acres of land. Good dwelling. In Clinton County, Iowa. nov JNO. F. MCGUIRE, Clinton, Iowa.

For Sale or Exchange.

Advertisements under this head \$2 per insertion, cash with order.

A GRIST MILL FOR SALE—A two-run Grist Mill with good water power and 40 acres land, in a good wheat country. Will sell for about the cost of the buildings. For terms and description address sep G. W. GRUBER, Mifflin, Wis.

FOR SALE—A Morgan Smutter, 45 bushels an hour. A Becker No. 5 Brush. Both almost new. Enquire at NORTHWESTERN MILLS. 518 Canal St., Milwaukee, Wis. oc

Situations Wanted, etc.

Millers, Engineers, Mechanics, etc., wanting situations, or mill-owners and manufacturers wanting employes, can have their cards inserted under this head for 50 cents per insertion, cash with order.

SITUATION WANTED.—By a first-class miller of long experience, to take charge of a mill. References, if desired, given on application. Would run a good custom mill on shares. Address, MILLER, sep Care U. S. MILLER Office, No. 62 Oneida St., Milwaukee, Wis.

WANTED A SITUATION—By a practical miller of over 25 years' experience in old and new process milling. Understand steam and water. Can take charge of any mill. Would like a steady job. Parties needing a miller will do well to correspond with me, stating terms and kind of mill. Can come at any time. Address DUSTY, care of United States Miller, sep Milwaukee, Wis.

O. L. PACKARD,

No. 87 West Water Street,

MILWAUKEE, WIS.,

HAS BEEN APPOINTED AGENT FOR

Schultz's Pat. Fulled Leather Belting and Lace Leather,

Sometimes called **raw-hide**. With the recent improvements in its manufacture and the greater care exercised in the selection of hides, I can now offer and guarantee it to be **superior** to any other Leather Belting or Lacing manufactured. It is used in the New York Navy Yards; by the **Yaeger Milling Co., St. Louis, Mo.** in rolling mills, cotton mills, planing mills, and for all purposes required. It is more **Durable**, more **Pliable**, **Stronger**, and **Stretches Less** than other belting; and the **Lacing** possesses all the good qualities desired. I respectfully solicit your orders for these goods; also for **Engines, Boilers, Steam Pumps, Inspirators, Machinery, Medart's Patent Pulleys, Etc.** [Please mention this journal when you write.]

C. C. PHILLIPS,

MANUFACTURER OF

VERTICAL and HORIZONTAL

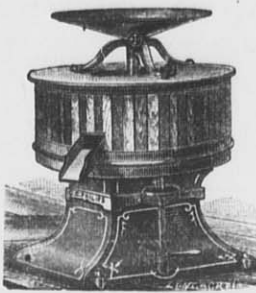
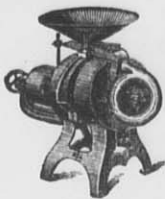
French Burr Mills.

IGREATLY IMPROVED.

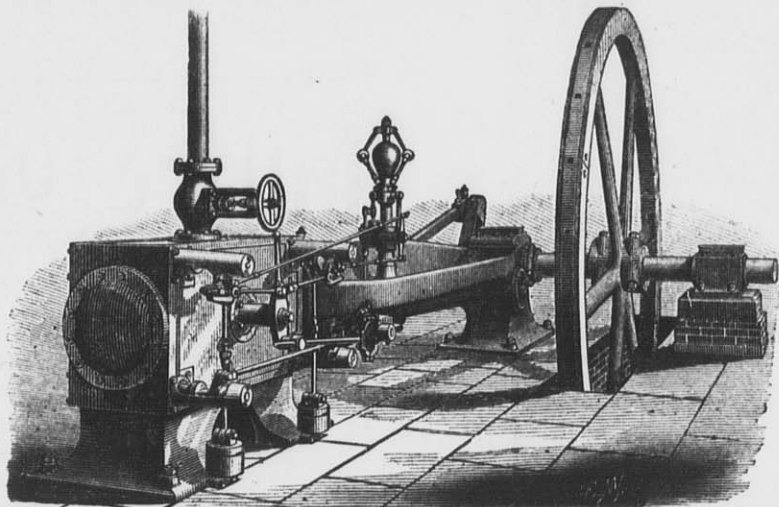
Adapted to all kinds of Grinding.

Send for circular before purchasing elsewhere.

C. C. PHILLIPS, 4048 Girard Ave., Philadelphia, Pa.

**ATLAS-CORLISS ENGINE**

Will Replace Ordinary Engines, Guaranteeing to Save One-Third Fuel.



WRITE FOR ENGINE PAMPHLET.

ATLAS ENGINE WORKS, INDIANAPOLIS, INDIANA.

BUILDERS OF ALL CLASSES OF

Engines and Boilers.We build **The Best Farm Engines and Small Engines** for Warehouses and Elevators.

janly

HARRIS-CORLISS ENGINE,

BUILT BY

WM. A. HARRIS, Providence, R. I.

Built under their original patents until their expiration. Improvements since added, "**STOP MOTION ON REGULATOR**," prevents engine from running away; "**SELF-PACKING VALVE STEMS**" (two patents), dispenses with four stuffing boxes; "**RECESSED VALVE SEATS**" prevent the wearing of shoulders on seats, and remedying a troublesome defect in other Corliss Engines, "**BABBITT & HARRIS' PISTON-PACKING**" (two patents). "**DRIP COLLECTING DEVICES**" (one patent). Also in "**General Construction**" and "**Superior Workmanship**."

The **BEST** and **MOST WORKMANLIKE** form of the Corliss Engine now in the market, substantially built, of the best materials, and in both Condensing and Non-Condensing forms. The Condensing Engine will save from 25 to 33 per cent. of fuel, or add a like amount to the power and consume no more fuel. Small parts are made in quantities and interchangeable, and kept in stock, for the convenience of repairs and to be placed on new work ordered at short notice.

NO OTHER engine builder has authority to state that he can furnish this engine. The **ONLY WORKS** where this engine can be obtained are at **PROVIDENCE, R. I.**, no outside parties being licensed.

apr

WM. A. HARRIS, Prop'r.**Case's Middlings Purifier.**

The Most Important Addition to Milling Machinery of Late Years.

It will be to the advantage of every miller thinking of getting a new Purifier to investigate the Case machine before ordering.

WE GUARANTEE:

1. That one Case Purifier, costing the price of one and occupying the space of one, shall be equal in capacity and result to two of any other make.
2. That we have the best cloth cleaning device in use.
3. That we have the best control of the blast.
4. That we waste less in the dust room than any purifier in use.
5. That our Patent Automatic Feed-Box is about perfection.
6. That giving twice the capacity our prices are only one half of those of any other standard Purifiers.

Send for illustrated circular and low price list to

The Case Manufacturing Co.,
COLUMBUS, OHIO.

[Mention this paper.]

BOTTLED BEER.**VOECHTING, SHAPE & CO.,**

SOLE BOTTLED BY

Joseph Schlitz Brewing Company's Celebrated Milwaukee Lager Beer
Cor. Second and Calena Streets,
MILWAUKEE WISCONSIN.

BOTTLED SUPPLIES CONSTANTLY ON HAND

Parties corresponding will please state where they saw this advertisement.

my15

Stout, Mills & Temple,

DAYTON, - - - OHIO,

MANUFACTURERS OF THE

AMERICAN TURBINE WATER WHEEL,

Best Quality French Burr Millstones.

Sole Agents in Dayton for the sale of

DU FOUR & CO.'S CELEBRATED BOLT'G CLOTHS.

Flour and Paper Mill Machinery, Best Chilled
or Porcelain Rolls for Crushing
Wheat or Middlings,

AND GENERAL MILL FURNISHINGS.

The **AMERICAN TURBINE**, as recently improved, is unequalled in the power utilized from a given quantity of water, and is decidedly the **BEST PATENT GATE Water Wheel** ever known. It has also been otherwise greatly improved.

Large Illustrated Catalogue Sent Free on Application.

apr

HULBERT & PAIGE,
MILL BUILDERS, CONTRACTORS,

General Mill Furnishers, Founders, Machinists.

MANUFACTURERS OF

STEAM ENGINES,

— AND THE —

Triumph Power Corn Sheller.

Plans and specifications made by accomplished
Mechanical Engineers and Millwrights.

Send for Illustrated Catalogue "G."

HULBERT & PAIGE,

Painesville, Lake Co., Ohio.

Awarded **SILVER MEDAL** Paris Universal Exhibition, 1878.**CARR'S PATENT**
Disintegrating Flour Mill.ALL PARTICULARS AS TO THIS MACHINE CAN BE OBTAINED
BY ADDRESSING**PHILIP TRIGGS,**

39 BROAD STREET,

BRISTOL, ENGLAND.

Sole Concessionaire for France and Belgium, Mons. Toufflin, 25 Rue de Constantinople, Paris.

Porcelain Rollers!!

THE INVENTOR AND MANUFACTURER,

WILHELM BRAUN,

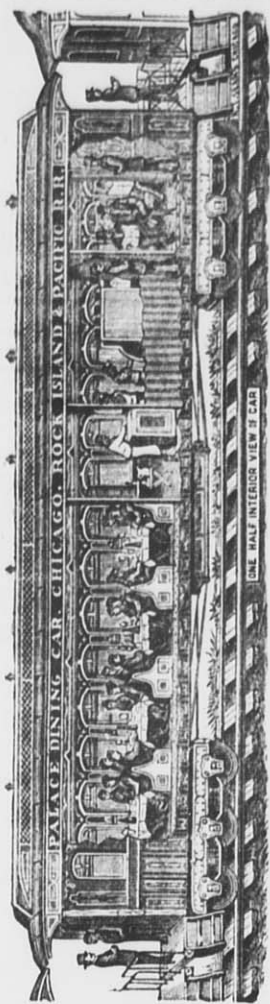
ENGINEER,

Carlsbad, - Bohemia,

Offers the **BEST** and **HARDEST** in existence,
of all sizes, in a rough state, mechanically
fitted on their shafts, and ground ready
to be laid in the Roller Mills.

17

If you are going to Kansas, Nebraska, Colorado, New Mexico, Arizona, Wyoming, Utah, Montana, Dakota, Nevada, Oregon, California, China or Japan, Ask for Tickets via the "GREAT ROCK ISLAND ROUTE."



THE CHICAGO, ROCK ISLAND & PACIFIC R.R.
Between CHICAGO and COUNCIL BLUFFS, KANSAS CITY, ATCHISON and LEAVENWORTH, is the GREAT STEEL LINE in the MIGHTY CHAIN stretching across the Continent from the Atlantic to the Pacific.
The Express Trains each way are run over its perfect track, and every appliance for the safety and comfort of its patrons is provided.
PULLMAN PALACE CARS, with their famous THROOP, and to all Express Trains is attached one of these FAMOUS PALACE DINING CARS for which this Great Route has become renowned.
This is the Only Railroad Owned by One Company Running Through Cars from Chicago into the State of Kansas Without Change.
Its connections are made in Union Depots, and its Tickets are sold at all Union Ticket Offices.
E. ST. JOHN, Gen'l Tkt. and Pass. Ag't, Chicago.
A. KIMBALL, Gen'l Supt.

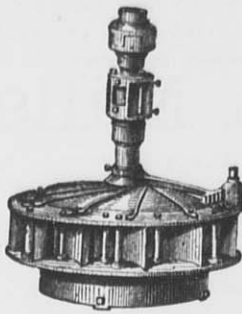
We run Palace Sleeping Cars for sleeping purposes, and Dining Cars for eating purposes only.
Found these Cars with Hotel Cars.
Do not come.

FOR SALE—Olathe elevator and grist mill, 30 horse power engine, two run corn stones; storage capacity, 30,000 bushels. Can be bought for \$8,000; \$2,000 cash, balance on time. Purchaser can make the \$2,000 within three months from flax seed contract that will be turned over with elevator. Address
GEO. B. LORD, Olathe, Kansas.

IMPORTANT NOTICE TO MILLERS.—The Richmond Mill Works and Richmond Mill Furnishing Works are wholly removed to Indianapolis, Ind., with all the former patterns, tools, and machinery, and those of the firm who formerly built up and established the reputation of this house; therefore, to save delay or misarrangement, all letters intended for this concern should be addressed with care to Nordyke & Marmon Co., Indianapolis, Ind.

STEEL CASTINGS.

FROM 1-4 TO 10,000 LBS. WEIGHT.
True to pattern, sound and solid, of unequalled strength, toughness and durability.
An invaluable substitute for forgings or cast iron requiring three-fold strength.
Gearing of all kinds, Shoes, Dies, Hammer-Heads, Cross-Heads for Locomotives, etc.
15,000 Crank Shafts and 30,000 Gear Wheels of this steel now running prove its superiority over all other steel castings.
CRANK SHAFTS, CROSS HEADS AND GEARING SPECIALTIES.
Circulars and price lists free. Address
CHESTER STEEL CASTINGS CO.,
Works, CHESTER, PA. 407 Library St., PHILADELPHIA.



James Leffel's Improved WATER WHEEL.

PRICES GREATLY REDUCED FOR 1879.

The "OLD RELIABLE" with Improvements, making it the Most Perfect Turbine now in use, comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads used in this country. Our New Book for 1879 sent free to those using Water Power. Address

JAMES LEFFEL & CO., Springfield, Ohio,
and 109 Liberty Street, N. Y. City.

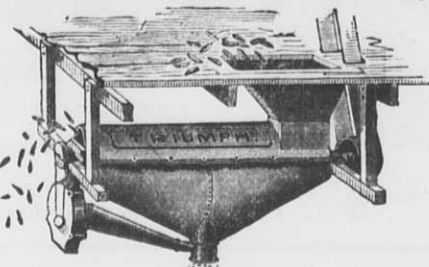


HILL'S LIGHTNING BAGGIE SIMPLE,



DURABLE,
Safe and Cheap.
Operates Instantaneously. A Perfect Success. Saves time, grain and fingers. Can be used with mittens on in cold weather. Sells at sight. Agents wanted everywhere. Send plain dozen to agents, post-paid, 10 cents; 50 for 75 cents. Postage stamps taken.
JAMES HILL,
Patentee and Manufacturer,
WILKES-BARRE,
 Luzerne Co., Pa.

TRIUMPH POWER CORN SHELLER!



Shells and Cleans 2,000 Bushels Ears per day.
The Cheapest, Best and most Simple Power Corn Sheller in use. Send for Circular and Price List.

HULBERT & PAIGE,
Painesville, Ohio.

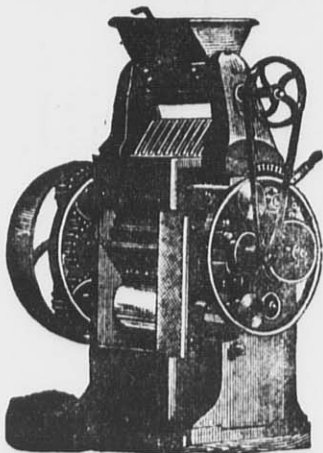
MILL-STONES FOR SALE.

3-run of French Violet Mill-Stones in perfect grinding order, with Universal Drivers, for sale at a very low price. Have only been in use two years, and are better now than when first started up. Size of stone, four feet in diameter. Parties desiring to purchase for cash address at once.

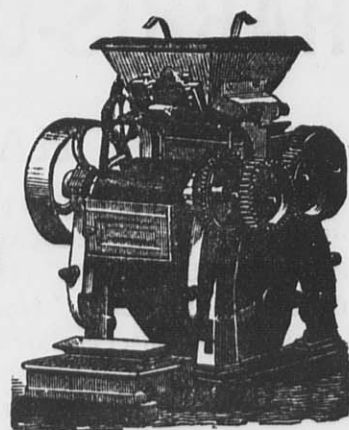
United States Miller,
MILWAUKEE, WIS.

VIENNA EXHIBITION, 1873, Awarded Diploma of Honor.

PARIS EXHIBITION, 1878, Awarded 2 Gold Medals and 1 Silver Medal.



GANZ & CO., Iron Foundry and Manufacturing Association, Buda-Pesth, Hungary; or Ratibor, Germany.



We take this method of recommending to the American milling public our PATENT ROLLER MILLS with chilled cast-iron rollers, for crushing and grinding wheat, which have met with such eminent success in Europe. The mill-owners of BUDA-PESTH, as well as the prominent millers of Austro-Hungary, and a large number in Southern Germany, Switzerland and England, have provided for their mills the celebrated GANZ ROLLER MILLS, which are about to supplant entirely grinding on mill-stones, their working being more perfect, producing more white flour, requiring less power than the best mill-stone, and wanting no repairs excepting to occasionally replace a bearing. We have introduced into the art of milling these Roller Mills with chilled cast-iron rollers, and from 1874 to January, 1879, we have delivered in the different European countries, Africa and the United States of America about 2,100 mills, and all work satisfactorily. Our crushing mills may now be regarded as absolutely necessary for every well-furnished modern mill, and this is proven by the numerous testimonials at hand. Our grinding mills are remarkable for their absolute discharge bearings, by means of the newly-devised Anti-Friction Pressure Rings. These Rings allow a very high pressure, and hence assure the performance of a great deal of work, avoiding all waste of power caused in other machines by friction in the bearings.

Out of numerous testimonials at hand we select the following:

BUDA-PESTH, March 28, 1878.—To Messrs. Ganz & Co., Foundry and Engineering Co., Limited, Buda-Pesth: Complying with your request to communicate to you my experience with your Roller material, I have pleasure in stating that I consider it, i. e., your generally well-famed chilled iron, as the best within my experience, and its adoption has assisted me in every respect, so that I do not hesitate to assert, by introducing it on a large scale, you have rendered a considerable service to the milling art. Your material is equally well adapted for rough grinding, softening or grinding. Owing to its great hardness I cannot characterize it otherwise than indestructible. The grooved cracking rollers have demonstrated this hardness, as also a toughness, of your castings in a manner which astonishes all who know the rapid wear of cutting edges used in the treatment of grain. Your smooth rollers, once properly ground, preserve their complete cylindrical form, and do not require any repairs for a period which even now cannot be estimated. They acquire, soon after being put to work, a finely-gritted surface texture, eminently adapted for grinding as well as for drawing down the meal, a condition which they preserve without change. It is quite superfluous to prove that there can be absolutely no question of discoloring unless with reference to new rollers, to which some remnants of oil, emery or other matter may yet adhere. The flour produced by your Chilled-Iron Rollers is very lively and has remarkable baking qualities. While stating the above to the best of my conviction in answer to your inquiry, I seize with pleasure this opportunity to express to you my thorough approbation, not only of your roller material, but also generally of your roller mill construction. Your rough grinding (cracking) with chilled-iron roller mills constitutes such an essential step in advance as compared to the rough grinding with stones, that they cannot fail to win their way into every well-built mill, working on the high or half-high grinding system. For the purposes of reduction to flour you have lately erected a form of mill which I consider extraordinarily successful. You have by the introduction of an entirely new mechanical organ, i. e., the Rotary Anti-Friction Spring Pressure Ring, solved the problem of discharged bearings, which has so often been raised and as often dropped again unanswered. You have achieved success with decided aptitude in a manner as wonderful as it is simple and practical. This Roller Mill absorbs, in fact, only just the power required for the reduction into flour, and none for bearing friction which, usually, as is well known, amounts to a high figure. This Flour Mill receives an agreeable and light form while attaining a capacity hitherto unknown. In handing you the above communication for use as you may deem desirable. I remain, etc.,
(Signed) C. HAGENMACHER, Director of the First Ofen-Pesth Steam Mills.

TIVOLI KUNSTMUEHLE, Munich, April 5, 1878.—To Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs: In reply to your esteemed of March 28, we have pleasure in testifying to our satisfaction with the Chilled-Iron Roller,

supplied to us by you. We have now had both smooth and fluted Rollers in use for the last two years, and have not found any appreciable wear in the smooth rollers. With reference to the work and capacity we can but report favorably. The flour produced by them is lively, and not killed as has been stated in some quarters, while its baking properties are first rate. Referring to the lately supplied fluted rollers, Mechwart's patent, grooved on the new method, they work admirably and are especially to be recommended for mellow wheats. Recapitulating, your Roller material is as tough as it is hard, and therefore in every way adapted for the purpose it is intended. We remain,
Tivoli Kunstmuehle, A. MUELLER.

BUDA-PESTH, July 16, 1877.—Messrs. Ganz & Co., Buda-Pesth—Gentlemen: The most satisfactory results which, on testing the different Wheat-breaking Machines, we obtained from your Fluted Rollers, induced us to adopt your system and, in consequence, we already provided our mill with a great number of your Breaking-Rollers. In consideration of the experience derived from use of these Rollers we beg to point out as particular advantages of your Wheat-breaking System, that extremely little flour is produced, provided the rollers are used as directed, that your Rollers most satisfactorily detach the Semolina from the Bran, and thoroughly separate the Germ from them. Moreover it must be stated that your system suits perfectly well any process of Breaking-Wheat. It affords us so much more pleasure to give you the above account, as we are inclined to think that by the construction of these Rolls you have achieved an essential progress in the milling industry. Yours truly,
PESTHER WALZMUEHL-GESELLSCHAFT. Riedle, m. p. Burchart, m. p.

BUDA-PESTH, July 11, 1878.—Messrs. Ganz & Co., Engineers, Buda-Pesth—Dear Sirs, Having had occasion to try your newly patented Roller mills with others, known until now, I feel induced, regarding their excellent qualities to give orders for furnishing me the Roller mills to be erected in my two mills. These roller mills are to be recommended by their construction, surpassing all known until now, and especially for their remarkable capacity, doing much work with little power. Believe us, gentlemen, Yours truly,
HEINR. HAGENMACHER.

BRANDERS A. ADLER, Bohemia, February 13, 1879.—Messrs. Ganz & Co., Buda-Pesth—Gents: I give you my best thanks for your delivering to me your well-made and well-working machines, as well as for those 2 machines you delivered me last year. I have no objection to your publishing this. Yours faithfully,
G. HANNAK, Civil Engineer and Mill-owner.

Address all communications to

GANZ & CO., Buda-Pesth, Hungary.

Cable Address "GANZ, Kaiserbad."

Or GANZ & CO., Ratibor, Germany.

Or THROOP GRAIN CLEANER CO., Auburn, New York.